

American Fruits

International Trade Journal of Commercial Horticulture

Circulating Throughout United States, Canada and Abroad
Featuring Commercial Horticulture in all its Phases of
Nursery Stock, Orchard, Landscape Planting, Distribution
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Number 6



The Painesville Nurseries

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This magazine is here to serve the trade as heretofore, on a high standard and with an eye single to the best interests of all in the trade. It welcomes suggestions and constructive criticism. The trade needs just such a progressive, absolutely independent exponent of its interests. If it did not already exist, it would be speedily supplied. It is here and in action.

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American Association for Advancement of Science—L. O. Howard, Smithsonian Institute, Washington, D. C.
American Association of Park Superintendents—J. J. Levison, Brooklyn, N. Y.
American Civic Association—R. B. Watrous, Washington, D. C.
American Pomological Society—Prof. E. R. Lake, 3333 20th St., N. Y., Washington, D. C.
American Society of Landscape Architects—Alling S. DeForest, Rochester, N. Y.
American Rose Society—Benjamin Hammond, Beacon, N. Y.
American Seed Trade Association—C. E. Kendall, Cleveland, O.
Apple Advertisers of America—U. Grant Border, Baltimore, Md.
British Horticultural Trades Association—Charles E. Pearson, Lowdham, Notts, England.
Canadian Horticultural Association—Julius Luck, Montreal.
Eastern Fruit Growers' Association—T. B. Symons, College Park, Md.
International Apple Shippers' Association—R. G. Phillips, Rochester, N. Y.
Mississippi Valley Apple Growers' Society—James Handy, Quincy, Ill.
Missouri Valley Horticultural Society—A. V. Wilson, Kansas City, Mo.
National Council of Horticulture—H. C. Irish, 4206 Castleman Ave., St. Louis, Mo.
National Horticultural Congress—Freeman L. Reed, Council Bluffs, Ia.
National Nut Growers' Association—J. B. Wight, Cairo, Ga.
Northern Nut Growers' Association—Dr. W. C. Deming, Georgetown, Conn.
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Ornamental Growers' Association—C. J. Maylor, Rochester, N. Y.
Peninsula Horticultural Society—Wesley Webb, Dover, Del.
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Society of American Florists and Ornamental Horticulturists—John Young, New York.
Union Horticole Professionnelle Internationale—C. Van Lennep, The Hague, Holland.

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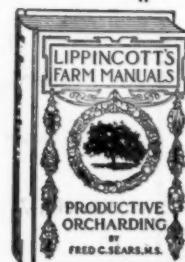
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AMERICAN FRUITS ROCHESTER, NEW YORK



AMERICAN FRUITS MAGAZINE---June, 1915

EDITORIAL DEPARTMENT—Communications on any subject connected with Commercial Horticulture, Nurseries or Arboriculture are cordially invited by the Editor; also articles on these subjects and papers prepared for conventions of Nursery or Horticultural associations. We also shall be pleased to reproduce photographs relating to these topics, Orchard Scenes, Cold Storage Houses, Office Buildings, Fields of Stock, Specimen Trees and Plants, Portraits of Individuals, etc. All photographs will be returned promptly.

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"AMERICAN FRUITS" is distinctive in that it reaches an exceptional list and covers the field of the business man engaged in Commercial Horticulture—the carlot operator. Here is concentrated class circulation of high character—the Trade Journal of Commercial Horticulture, quality rather than quantity.

"AMERICAN FRUITS" will not accept advertisements that do not represent reliable concerns.

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WHAT THIS MAGAZINE STANDS FOR—Clean chronicling of commercial news of the Orchard, Field and Nursery. An honest, fearless policy in harmony with the growing ethics of modern business methods.

Co-operation rather than competition and the encouragement of all that makes for the welfare of the trade and of each of its units.

Wholesome, clean-cut, ring true independence. **INDEPENDENT AND FEARLESS**—"AMERICAN FRUITS" is not the official journal of any organization. It therefore makes no distinction in favor of any. It is untrammelled in its absolutely independent position and is the only publication of the kind.

This Magazine has no connection whatever with a particular enterprise. Absolutely unbiased and independent in all its dealings.

Though it happens that its place of publication is in the eastern section of the country, it is thoroughly National in its character and international in its circulation.

Its news and advertising columns bristle with announcements from every news corner of the Continent.

It represents, as its name implies, the Fruits of American industry in one of the greatest callings—Commercial Horticulture in all its phases of Nursery Stock, Orchard and Landscape Planting and Distribution.

AMERICAN FRUITS PUBLISHING COMPANY, INC.

Ralph T. Olcott, Editor and Manager.

123-125 Ellwanger & Barry Bldg., Rochester, N. Y.

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American Fruits

Commercial Horticulture, Nurseries and Aboriculture

Entered August 4, 1904, at Rochester, N. Y., Post Office as second-class mail matter

Vol. XXI

ROCHESTER, N. Y. JUNE, 1915

No. 6

Reflections of a Pioneer Nut Hybridizer*

DR. ROBERT T. MORRIS, New York City

WHEN the time comes for me to leave this good world I shall be perfectly satisfied with work completed, if success can be counted in only three accomplishments: Professionally—in founding the fourth era of surgery; Sociologically—in establishing the doctrine of cultural limitations in its relation to man; and Horticulturally—in fixing the idea of orchardists making one hundred dollars per year per acre from nut trees grown upon every barren hillside in America which can be made to grow trees of any sort.

The conception of the fourth era in surgery came as a result of observations upon effects of the short incision in appendicitis, but its principles could not be formulated until some years later.

A study of the factors which would account for the doubling of flowers carried me into an appreciation of that continuity in nature which made the phenomenon clearly analogous to variations occurring in other forms of organic life; indicating the nature of limitations of culture which included man in its processes.

The idea of covering our barren hillsides with nut trees came as a natural result of experimental work in arboriculture, and the observation that valuable crops of nuts might easily be raised upon land that has been practically abandoned by farmers.

Value of a Hobby

It is particularly difficult for a doctor to follow up any sort of constructive work that lies outside of his first-duty responsibilities. He must keep his mind unceasingly upon his cases during the months of professional work. He turns cases over and over in mind during the day. The ideas which suddenly come to him in connection with a given case may save that patient's life, or at least avert some dangerous complication. "There!" says the doctor, "That's just what I need to do for that man. Glad I thought of it!" His mind must not be upon the stock market, or upon hobbies, or business, or troubles, but ever and always upon his cases. Cases alone—during months of work. Vacation time may be devoted to hobbies, business and troubles, but not the time which belongs to his professional wards. Every one should have some hobby however that will make him prance around the room with joy occasionally; otherwise he is dragging along through life and just waiting to finish a sort of duty job which he cannot avoid.

Placing a bit of horticultural work at the end of these notes is rather symbolic of my ideal life, which included the idea of developing a useful recreation which would run along indefinitely in to that time in life when it becomes necessary to have aid for a feebling hand and shaking knee. When professional work is done, with its hurry and responsibility, this other work will fill the days of old age with comfort if not with inspiration. It places something ahead of a man right up to the last minute.

The history of my work in hybridizing nut trees is of interest as showing what unex-

pected trend may take one into fields of observation that he had not anticipated. In 1901 it was my ambition to collect upon the country place (at Stamford) all of the American trees and shrubs that could be acclimatized at that latitude. After devoting spare hours for a couple of years to getting together specimens and information, the subject had grown to such great proportions that a decision was made to confine the collection to nut-bearing trees and the conifers. After a couple of years more of experience this division had grown to such unwieldy proportions that it became necessary to confine myself to the study of nut-bearing trees, and this in turn grew so rapidly that one could readily perceive that an entire life might be devoted to the subject of hickories alone, and a man would not comprehend the subject fully even at that.

Cross-Pollenizing the Nut Trees

After studying our various species of hickories, trying to collect species and varieties in order to cultivate the most desirable ones, it became apparent that the ideal hickory nut was not likely to be found in nature because nature had established mean types too securely. Plans were made for cross-fertilizing the flowers of various species and varieties that approached the ideal, in the hope of developing a large, thin-shelled nut of high quality and a tree that was prolific and precocious in bearing. Experiments in cross-pollenizing the hickories and other nut trees were begun in 1905. A further study of the subject brought out the fact that varieties of hickories, like varieties of apples, were already so crossed that, in order to get an ideal nut and tree, it would be necessary to cross species rather than varieties. Incidentally I crossed different species of walnuts with different species of hickories, and found that the so-called open bud hickories and all of the walnuts seemed to accept each other's pollen, but at the present writing am not sure if true hybrids have resulted. If the crosses prove to be true hybrids the phenomenon had not been previously observed. While engaged in doing this work, experiments were made incidentally in attempts at crossing various hazels with each other, at crossing various chestnuts with each other and with their cousins the beeches and the oaks. It was found that this field offered many possibilities but required more work and tabulation of data than could be managed by a very busy man with complicated responsibilities, who was making the subject simply one for recreation. So far as I then knew, the subject of crossing nut trees had not been taken up systematically and deliberately by any one else, but it was found later that an occasional experimenter had included some species of nut trees in hybridization work. It may be that many other experimenters had deliberately set out to cross the nut trees, but at the time of the beginning of my ex-

periments, data for guidance were not obtainable, and available literature did not indicate that others were engaged in this work. It was probably just about time in the course of progress for some of us to take up such a subject. As we progress in various fields of observation, one subject after another is taken by mankind when the proper time arrives. If I return one hundred years from now horticulturists will perhaps be near the point of injecting into a twig some preparation of malic acid for the purpose of sensitizing ovules of a flower in such a way that its protoplasm will accept pollen not only from another variety or species but from another genus or family.

A Great Engine of Production

The reason why agriculture occupied itself first with annual plants was because of the immediate returns from investment. Then came development of fruit trees with fairly prompt and large return upon investment, and the fruit tree orchardist made a better income on the whole than the man who devoted himself to annual crops, the returns from which were comparatively small in proportion to the outlay of money, time and labor. The great engine of the nut tree was neglected because of the time required for such trees to come into profitable bearing. When the nut tree finally did receive attention in the due course of progress, nut orchards of selected varieties of walnuts, almonds, hazels and pecan hickories were found to give large annual returns upon capital invested. Selection by horticulturists had been made chiefly from choice specimens of trees which were found in nature and then propagated by grafting. The idea of developing ideal nuts of fine quality and great food value by a systematic method for breaking up nature's mean types and making new combinations which men want, has been left for hybridizers of the Twentieth Century. Nut trees under this treatment may be made to give a larger proportion of food per acre than may be obtained perhaps from any other crop. It certainly has been a great delight to be one of the first to suffer the disappointment, financial loss and hardships that are connected with hybridizing and cultivating nut trees. It is a joy to help prepare the way for others who can profit by one's mistakes and errors. All of the nuts resulting from my efforts at cross pollenizing during the first year of work were lost. Many of them were lost before being collected, because I had not realized how well the squirrels, white-footed mice and other animals which are not so very dumb knew a good thing when they saw it. After the nuts had been collected some of them were stored improperly. They mildewed or dried out, and most of the specimens which were not mildewed were carried off by rats and mice which found their way into the boxes where specimens were kept. During the next year of hybridizing, notwithstanding the application of many protective devices, it was nevertheless found

*From advance notes of the book, "Tomorrow's Topics" by Dr. Robert T. Morris, 616 Madison Avenue, New York City, just published by Doubleday, Page and Co., New York.

Continued on Page 134

Turning Rocks Into Apples In Virginia

Remarkable Development of Commercial Orcharding in a Rough Country---Thrilling and Inspiring Scenes in Vast Areas---The Aristocracy of the Apple Kingdom

It was my privilege while in Virginia last summer to spend a few days in Patrick county, and to have my eyes opened to some of Patrick's wonders. Among these were rocks, and trees in spite of rocks. This has necessitated some revision of my notions about agricultural soils. One of these has always been that good soil must, for the most part, be in a pulverulent condition, granting of course, that any soil is fed from rock, even that lying at profound depths. As a general proposition this idea is still pretty solid with me, but it received a jolt when I saw those sturdy Patrick trees growing among the rocks.

In size the rocks range from small cobbles to boulders, and when the fields are plowed these are tumbled about and rolled down hill. Also, they may be piled, but this is not to get rid of them. On the other hand, it is to utilize and derive full benefit from them. And the trees thrive best where the rocks are most abundant. It would appear that in such a country there would be no use for agricultural tools such as are used in softer sections, but I was informed that frequent cultivation was quite essential. They call it cultivation, but in reality it is only a rearrangement of the rocks. Here is a chance for some genius to design an efficient rock tumbler. No doubt they cultivate about the trees now and then by tearing down the piles in which they are planted and rebuilding. Is the reader incredulous? I would not undertake to substantiate the above statements elsewhere, but go to Patrick and you will see for yourself. About all that is needed with which to start an orchard there are three rocks and a live switch, and the raw material is not wanting. I was driven over a good part of the county, and that was what gave me the abiding impression of the rocks. It would be illuminating to publish here what some of the party said on that occasion, but this article

must pass the censors and possibly through the mails.

It was about the orchards that I wanted to speak, and now we have arrived. I had seen those lands years before while they were being subdued from the pristine to the cultural state, and now it was my great pleasure and surprise to see in the place of mountain jungles the most beautiful trees bearing their apples in variety. And I knew that those apples would, a few months hence, win prizes at the big shows, and thus add more glory to old Patrick. The occasion was an especially happy one for me, being the guest of the pioneer orchardists, Cols. Wysor and Stedman, through whose foresight, perseverance and energy the finest group of orchards in Virginia have been won for their stockholders. The roughness of the country, although grand from the scenic point of view, would discourage many a prospective orchardist, but the results that follow are not to be wondered at either when one sees what is taken from the land in clearing. So luxuriant was the growth that it was difficult to recognize some of the wild species. I found leaves on tulip trees that measured 16 inches across, the average width of tulip leaves, according to observations elsewhere, being about six inches. Mountain laurel had reached the proportions of tress, the trunks often measuring 12 inches in diameter, and one was found with a diameter of 17 inches. The process of clearing was still going on at the Premium, Atwood and Shelton orchards, while in the Stuart and Patrick orchards the trees had attained the form and dignity though not the size, of maturity.

The Patrick trees as well as their fruits are large and handsome. It is here that we find the aristocracy of the apple kingdom. Here abides "Old Handy", the great tree of Virginia, making the ordinary apple tree but a shrub by comparison. I hope some day to

see the wonderful coves which reach from Old Handy toward the mountains planted in trees. An apple orchard, either in flower or in fruit must be seen to be appreciated. It is bound to appeal to anyone, no matter what may be his tastes or temperament. To the mercenary it is "the substitute of things hoped for," and to the esthetic "evidence of things not seen." To all, the sight of apple trees in blossom, crowning the hill tops and filling the valleys with their fragrance, is one to thrill, to inspire. It makes one feel like joining with the sweet singer of Israel—

"Awake, O north wind; and come, thou south; blow upon my garden, that the spices thereof may flow out."

I think I have discovered the secret of Patrick's great success at apple raising, and it disturbs me not a little, for the future is involved. While speaking of rocks I did not say that Patrick was long ago made famous by its rocks, nor was the reader informed that the little staurolites, better known as fairy stones, and the stones upon which the trees feed are derived from the same rock mass. The fairy stones are highly prized for their odd shapes and many of them make beautiful trinkets. Indeed, the demand has become so great that quantities of them and the mother rock as well are being shipped away. Another and significant name, "lucky stone", has been given them. They are supposed to carry good fortune with them, and no doubt they do, but to the people of Patrick let me sound a note of warning: When all the lucky rocks have been hauled away what will be left for the unlucky apple trees to feed upon? Better see to it that your most valuable asset does not get away. From platform and press all over the state, Virginia boys are being urged to stay and build up the home industries, and parents are told how to interest the boys and keep

Continued on Page 131

ORCHARD PLANTING AS PRACTICED IN SOUTHERN VIRGINIA



Clearing Land with a Stump Puller Preparatory to Planting Trees. Shelton Orchard, Patrick County, Va. Col. M. V. Stedman, President

Advantages of Nebraska as a Fruit State

J. R. DUNCAN, Secretary Nebraska Horticultural Society

Nebraska at present might be termed as entertaining a period of horticultural awakening. The soil of Nebraska is as rich as any soil in any state. Our farmers have prospered as well as those of any section. In fact they have been making a living so easily growing diversified crops that the growing of fruit has not appealed to them. Especially is this true in the eastern part of the state. Here climate, soil and location have been combined in such a way that fruit is produced which has no superior for flavor, quality, texture, keeping qualities or color. Those men who have been engaged in the growing of fruit have demonstrated that the best methods applied to the production of the fruit and preparing it for market will enable Nebraska fruit to successfully meet any competition from any section. Associations of growers are being formed with the avowed purpose of raising the standard of Nebraska fruit that is placed on the market so that fruit from other sections will be sections. The Nebraska grower has been one of low prices to the growers of many sections. The Nebraska growers has been getting good living prices for his fruit and making a profit on his entire investment.

Great interest is being manifested by the growers in the best methods of production and distribution. Old orchards are being renovated and placed in shape to produce first class fruit. Instead of going at fruit growing in a haphazard manner the up-to-date grower is putting it on a business basis that will establish fruit growing as one of the most remunerative phases of agriculture which can be practiced in Nebraska. Not only are old orchards being cared for, but thousands of trees are being and will be set in commercial orchards. The loess soil of the Missouri river valley is conceded by geologists to be one of the richest soils in the world. It is especially adapted to the growing of fruit. Apples, grapes, pears,

peaches, plums and all kinds of small fruit reach perfection in this soil. This spring there are several thousand trees, vines and plants being set in this section by men who understand fruit culture and who know that they are located in a region which in a few years' time is destined to become one of the most productive in the world.

This is a strong statement to make but natural requisites such as climate, soil and nearness to market, cheap land, are found in this territory grouped together in a way to produce profitable crops of the highest grade of fruit. With up-to-date methods a steady, growing home demand for the produce of Nebraska gardens and orchards is being developed. The cost of production can be reduced to a point where our products can be placed on the market for a lower price than fruit grown in other sections and yet will net the producer more profit. Some of our growers have demonstrated these things to their own satisfaction and are planning a larger acreage of fruit each year. Other men are going into the business each year. Some will fail because of lack of sufficient capital, others for various reasons. Many will make a success and help to place Nebraska at the top in the horticultural world. Without a doubt Nebraska has a great future in the production of horticultural crops. Not only is this true of eastern Nebraska, but in central and western parts of the state where proper methods are employed horticultural crops can be made a success.

There is no valid excuse why Nebraska consumers should be compelled to spend thousands of dollars each year for horticultural products grown in other states which could be produced in Nebraska. The time is not far distant when Nebraska consumers will be supplied with Nebraska products of a quality not found in products of any

other section. The people of the state are slowly coming to realize what great horticultural possibilities are to be found within its borders. With the united efforts of all men now engaged in the business and all those who will enter in the next few years the wealth of our state will be increased a good many millions of dollars. From every point of view the horticultural awakening in Nebraska means much to the state.

Turning Rocks Into Apples

Continued from Page 130

them at home. That is good counsel. I find no fault with it or with its votaries, but to those who wish to see old Patrick maintain first place as a producer of fine fruit my advice is this: Let the boys go if they must, but keep the rocks at home.

The fact that many of the finest apple and peach orchards are located on rocky soil may not be generally known, nor may the reader be aware that such soils are to be preferred. Lest he be misled the writer wishes to postscript this article with an apology. The article is impressionistic rather than comprehensive, for the Patrick county lands are not all rough. On the other hand there are very many thousand acres of the finest agricultural soil all over Patrick county. The writer has weighed Patrick soil in the chemical balance, and has not found it wanting. But it is absurd to discuss laboratory results when Nature has rendered her verdict in trees and fruits with such a lavish hand and with such phenomenal financial success.

H. W.

Augusta County, Va., fruit growers expect a good "off year" apple crop. Bloom was light in many sections of the state, but there is promise of an unusually large crop in Augusta County for a year following a bumper crop.

THE TRANSFORMATION—ONE OF MANY IN SOUTHERN VIRGINIA



Stuart Orchard, Patrick County, Virginia, Showing Several Thousand York and Winesap Apple Trees.
Col. M. V. Stedman, President

Activities of Horticultural Societies

Northwestern Apple Crop

That the Northwestern apple crop this year will be short of the total of 1914 output is the conclusion reached by the Northwestern Fruit Exchange. Reports to the organization from various districts state that the bloom on the old trees is much less than last year, but that trees coming into bearing will have considerable counteracting effect.

The Yakima district was the heaviest contributor to Northwestern tonnage in 1914, with nearly 6,000 carloads, but the consensus of opinion now is that it will ship only 60 per cent of that tonnage this year. Many of the old trees will carry but 25 to 40 per cent of their last load if the bloom is a true indicator. Even with new orchards coming into bearing it is not safe to estimate above 4,000 carloads for 1915.

Wenatchee shipped 5,570 cars of apples during the season just closed. Its old trees show disposition to bear heavily, but not so much so as at Yakima. Many new orchards will bear their first substantial crop, especially in the section to the north, called the up-river country, where it is estimated that 400 cars will be rolled as compared with 150 last season.

Not a Sentimental Conclusion

President J. F. Davidson of the North Pacific Fruit Distributors, says:

My firm belief is that any disintegration of this organization or withdrawal from it by any of the districts represented will be a serious blow to the fruit industry of the northwest. This is not a sentimental conclusion, but is a matter of business, and while it is correct, theoretically, it is correct in my opinion from actual observation and experience.

In years gone by, when apples were largely sold f. o. b. shipping point and delivered and the money paid, such organizations were not so essential as they are at this time when very few apples are sold until they are actually delivered to the purchaser and the money collected.

If any of the large districts, or any number of them withdraw from the North Pacific Fruit Distributors and they adopt individual marketing arrangements, it goes without saying that the expense to the grower will be very largely increased. It also means that instead of one representative in each of the large markets taking care of all of the products, each of the districts will have a representative, making 5, 8, 10 or 20, as the case may be; all of these representatives or officers having separate expense accounts and all competing against each other for business.

The estimate of the peach crop of Texas is about one thousand cars. Georgia expects 4000 cars. Conservative estimates place the Arkansas peach crop at 7000 cars of which the Ozark Fruit Growers' Association will handle the bulk.

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WYOMING—Prof. Aven Nelson, Laramie.

Apple Grades Agreed Upon

The 1915 rules adopted by the Northwest Fruit Shippers' Council at Spokane April 28 have been put into final form by the committee appointed for that purpose and copies are being sent to shippers throughout the Northwest.

For the first time in the history of the fruit industry of the Northwest, shippers have agreed on a set of standard grading rules.

Principal variations from the rules observed during the past season are: In the case of apples, the color requirements for extra fancy Jonathans are 66 2-3 per cent. red, which is a compromise between the 75 per cent. required by some shippers and 50 per cent. required by others. For Rome Beauties, there is a big variation from last year; the extra fancy grade is the same, 50 per cent. good, red color, but the fancy grade, instead of requiring 25 per cent. red, as heretofore, does not now necessitate any specific amount of red, but must show a red blush for all sizes under 96, while 96 and larger need not. The red color area for extra fancy raised from 50 per cent to 68 2-3 per cent.

General Sales Agency

Designed to eliminate more than one-half of the expense of maintaining sales organization in United States and Canada for the great citrus, deciduous and vegetable crops of California, the General Sales Agency of America has been organized in Sacramento, and Southern California producers are to play a big part in the system which growers declare is to solve the demand for decreased cost in the handling of produce from producer to consumer.

It is the consolidation of the sales system of four great distributing organizations as follows: The Mutual Orange Distributors, headquarters in Redlands—the biggest independent citrus fruit shippers of the state; The California Vegetable Union, headquarters in Los Angeles; the North American Fruit Exchange, headquarters in New York, which handles a large portion of the apple crops of California. Oregon and Washington; The California Fruit Distributors, headquarters at Sacramento, which handles 65 per cent. of the central California deciduous fruit crop.

Largest McIntosh Orchard

One of the large apple orchards of the West is the University Heights orchard near Darby in the upper part of the Bitter Root valley, Montana. It has an area of 2400 acres and about 200,000 trees, 80 per cent. of which are McIntosh, making it the largest orchard of McIntosh apple in the country. The manager, R. K. Thompson, devotes special attention to the growing of fancy apples. Systematic spraying is a prime feature of the cultivation of the fruit.

PRESIDENT GOODMAN

APPOINTS COMMITTEE

Editor "American Fruits":

I have asked our Executive Committee, Prof. William R. Lazenby, George C. Roeding, E. W. Kirkpatrick, Prof. W. T. Macoun and Prof. F. C. Sears, to prepare a plan for an American Federation of Horticulture and present it at our meeting in San Francisco.

I feel sure that these men will have ready some plan that will be acceptable. They are the official representatives of the American Pomological Society and can work with authority subject to the approval of the Society.

L. A. GOODMAN, President,
 American Pomological Society.
 Kansas City, Mo., May 22, 1915.

R. B. GRIFFITH

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Indiana Nursery License Law

State Entomologist Baldwin has sent out the following letter with copies of the new nursery law of Indiana:

May 13, 1915.

Dear Sir—As is the case with the starting of any new regulations, there naturally is more or less confusion and misunderstanding incidental to inaugurating the new requirements relative to selling or soliciting orders for nursery stock in Indiana.

I am enclosing herewith a copy of the complete law referred to in my former communication concerning this matter, and would call your attention to the section or sections pertaining to your status as (a) a dealer, (b) an agent, or (c) a person or firm located outside the state of Indiana, desiring to ship nursery stock into Indiana.

Three forms of licenses will be issued: (a) To the Indiana dealers (those whose place of business is in Indiana and who sell stock to be transplanted, or who receive stock to be heeled out within the state of Indiana; (b) Agents (regardless of their place of residence), who sell or solicit orders for nursery stock within the state of Indiana; (c) Persons or Firms (nurserymen, dealers, agents or other persons), outside the State of Indiana, who sell or solicit orders for nursery stock in Indiana.

All persons, therefore, who ship stock into Indiana, originating at points outside this state, are amenable to the license provision in section 4 of this act. This would include all those selling through catalogue price list or otherwise to nurserymen, dealers or other person or persons in this state. A copy of inspection certificate which is valid at the time application for license is made, and a remittance of \$1.00 (preferably P. O. Money Order) is the necessary procedure for obtaining a license. Remittance will, of course, be returned if for any reason the license is not issued. It is advantageous in many ways that our request that you fill out blank forms and return same to this office be complied with. This is particularly important if you do business with dealers (who are not growers) or have agents representing you in this state.

Those persons who do not at present know whether or not their business will be such as to make them subject to the license requirements of this act, may obtain a license at any time of the year by complying with the provisions of the law for obtaining such license. Remittance must, in all cases, precede the issuing of the license. All licenses are valid for one year, unless revoked for cause, following the date of their issue.

Each agent must obtain from his principal a copy of the valid certificate of inspection held by his principal and attach same to his license.

This letter should be given particular attention only by those who have not already complied with the requirements, and whose business in Indiana makes them subject to the license phase of the law.

C. H. BALDWIN,

State Entomologist of Indiana.

P. S. This act shall take effect and be in full force from and after June 1st, 1915.

Personal

E. Y. Teas, Centerville, Ind., 86 years old, has retired from the nursery business.

Reilly Brothers, Dansville, N. Y., filed a voluntary petition in bankruptcy, April 20, showing liabilities of \$31,535.42 and assets of \$71,060. Edward Bacon is receiver.

The many friends of Charles A. Ilgenfritz, Monroe, Mich., express sympathy by reason of the death on April 24, of Mrs. Ilgenfritz, who was a frequent attendant with her husband at the annual meetings of the American Association of Nurserymen. Mrs. Ilgenfritz was prominent and very popular in her home city where expressions of the deepest regret accompanied the announcement.

George T. Tippin of Springfield, Mo., a well known horticulturist, is superintendent of the Missouri horticultural exhibit at the Panama-Pacific Exposition.

G. C. Whittaker, an experienced nursery man, formerly of Seattle, has purchased 30 acres at Grand Mount and will establish a nursery there.

H. E. Barden, well known Kenosha, Wis., business man, last month gave 3,000 apple trees to the school children of the city. For four years Mr. Barden has been giving trees to the children, and it is declared that there is now a "Barden" tree in every yard in Kenosha.

The many friends of William P. Stark in commercial horticultural trade circles will be interested in the sound healthy growth of his nurseries at Neosho, Mo. During the busy spring packing season this year 450 persons were employed and from 500 to 700 shipments of trees and plants were made daily by freight, express and parcel post. A branch express office has been established at the nurseries. A heavy trade in strawberry plants was an added feature this year. One hundred acres have been added to the nurseries and a gasoline tractor has been purchased for use in cultivating. Royal Arch Masons attending a state convocation at Joplin recently visited the Neosho nurseries.

Montana challenges the world to find any apple grown in the state with a worm in it and is willing to back the challenge with a reward of \$1,000, according to Mr. and Mrs. Jack Corporon of Butte, Mont., who returned recently from a visit to the Panama-Pacific exposition, where they saw a large placard displaying the challenge on a big pile of beautiful Montana-grown apples in the horticultural building. The placard reads: "\$1,000 for a Montana apple with a worm in it." The exhibit, Mr. Corporon says, is attracting considerable attention from all who attend the fair.

If it relates to Horticulture it is in "American Fruits."

Nursery Stock Delivery Rule

I ordered some nursery stock from C. W. Stuart & Co., of Newark, N. Y., last fall. I notified them last week and told them not to ship it. They answered saying I had to take it. They had an agent here who was a good talker, hence the order.

Mrs. P. J. D.

Pennsylvania.

So many people sign orders with agents for nursery stock, with the idea that they can cancel the order later on if circumstances arise which make it undesirable to plant the stock, that we want to impress all readers with the fact that the order blanks which nursery agents present for the signature of the purchaser contain a definite provision, that the order is NOT cancellable. It is also the invariable policy of nursery houses selling through agents in this way to refuse to accept cancellation of orders under any circumstances. The stock is left on the property of the person signing the order by a delivery agent and then payment is demanded and forced through the courts if necessary. No matter what the representations of the agent may be when one of these blank orders is signed, the party signing it is held for the amount stipulated on the order, unless it can be shown that the signature to the order was secured by fraudulent representations.—Rural New Yorker.

Our contemporary might have added that nursery stock is perishable property—a loss to the nurseryman if refused after it is ready for delivery.

Real Estate Man Meets His Match

Editor American Fruits:

A farmer down in Louisiana complaining of hard times and lack of money with which to purchase feed to enable him to make a crop, proposed to a real estate agent to accept a dollar apiece for all live stock upon his farm, stating that he would not attempt to make a crop but would sell out and go to work at a near by saw mill for wages. The agent took him up and went over to the farmer's place with cash in hand to pay for the live stock. There were so many heads of mules at one dollar each, horses, cows, hogs and even chickens went into the inventory without protest. Finally the farmer took the agent around the dwelling house and out into the orchard and there remarked: "Now here's where we are going to have a devil's own job of counting these bees."

CHAS. A. CHAMBERS.

Fresno, Cal.

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TREES

FELIX & DYKHUIS, Boskoop, Holland
HORTICULTURAL ESTABLISHMENT

Reflections of a Pioneer Nut Hybridizer

Continued from Page 129

that rodents and weevils adapted themselves to my devices with wonderful celerity, and practically all of the resulting nuts were lost, although a few sprouted and grew. I am not afraid to pit my intelligence against that of another man, but I take my hat off to a mouse.

Trials of the Hybridizer

Many of the valuable specimens which grew were destroyed later in so many kinds of ways that my sense of humor came to the rescue of disturbed feeling. Nature has learned the lesson for growing ten thousand seeds when only one is apparently required, and that showed the difference between nature and me. In this particular year particular attention had been devoted to the chestnut, for the reason that the chestnut blight threatened to dispose of all our native American sweet chestnuts. Pollen of the American sweet chestnut was placed upon pistillate flowers of certain species which resisted the blight, but crosses were made chiefly upon the chinkapin. At the end of the season there were several hundred beautiful nuts of the cross between American sweet chestnut and chinkapin, and in order to prevent autumn sprouting they were buried deeply in the sand. When taking them up in the following spring they were found to have sprouted nevertheless, and on account of being buried so deeply had mostly perished. Only five nuts sent out sprouts from adventitious buds, but that was a "new thing" for chestnuts to do, and the accident furnished a note of value for botanists. The following year's work resulted in my having several hundred specimens of crossed nuts, and of these some were placed in stratification boxes and others were planted near the surface. The ones planted in stratification boxes all dried out and perished, and the ones planted near the surface were all frozen. This experience showed incidentally the way in which nature had limited indigenous distribution of the chinkapin. The nuts of this species naturally sprout as soon as they have fallen in the autumn. In their southern habitat they grow sufficiently to lignify securely for winter protection. Farther north, when sprouting in the same way, the shoots do not lignify sufficiently for winter protection. This explained nature's way for checking distribution of that particular species and furnished another note of value for botanists. Few men can realize, unless they have had direct experience, the number of accidents that may happen to seed between the time of its development and the time of its appearance as an established young tree. When protecting the flowers of the trees that were to be crossed by covering them with paper bags, it was found that those bags likewise protected aphides and other insects against their natural enemies. The result was that parasites had sometimes increased to such an extent under cover of the bags that flowers and leaves were entirely ruined—an object lesson relating to the value of birds. It became necessary to devise a means for avoiding this accident (which was finally accomplished.)

Amid Squirrels and Mice

In order to protect flowers against accidental fertilization by their own kind of pollen, considerable experience had to be gained. The difficulties in protecting the nuts while they were still upon the trees were considerable. Squirrels would cut off

the tape which marked branches of hybridized nuts, besides cutting off the nuts themselves. When nuts were encased in wire gauze cages upon the tree, squirrels would cut off the branches, allowing them to fall to the ground. Squirrels, white-footed mice, field mice and pine mice would then manage to get the nuts out from these cages. A habit of the gray squirrel, which I had neglected to keep in mind, resulted in ruining all of the nuts upon two hazel bushes in which nuts had been hybridized with pollen from an Asiatic species. Wire netting had been arranged around the bushes, leaving a doorway on one side. Steel traps were placed in the doorways, attached to long chains. In the morning there were two squirrels in the traps, and these squirrels, frightened by the snapping of the traps upon their feet, had immediately followed squirrel nature by climbing to the top of the bushes, dragging trap and chain along, and this they had kept up so continuously during the night that they had broken every branch and had knocked off every single nut from the bushes. Although the culprits had been captured, they nevertheless accomplished, unhappily, the same result as that which formerly had followed their joy. Early in the spring birds would sometimes untie string that was used for marking hybridized nuts upon the trees. Their motive was undoubtedly utility,—for nest building purposes. Red squirrels on the other hand would often cut these label strings in a spirit of pure mischief. I am not psychologist enough to state definitely that such was the motive, and can only remember that as a boy I used to do things which the red squirrel now does. On that basis one may trace the psychology of the red squirrel, and find that some of his acts belong to pure mischief. Even after nuts had finally been collected, protected through the winter, planted, sprouted, and set out in the nursery rows, troubles were not ended. For instance, it was found one morning that in an entire row of hybridized hazel nuts the field mice had destroyed each and every one of them in a single night, after they were sprouted and set out. In another row of crosses between the pecan hickory and one of the walnuts, the crows, having found the sprouted nuts, destroyed them all in a single day. Many of the young trees from hybridized nuts seemed to be particularly attractive to various insect enemies. They were destroyed by ants and beetles, and even when they had been carried through their first winter successfully, it was found in the following spring that field mice and pine mice working below the ground had cut off the roots of very many of them.

Elaborate Methods for Protection

It was necessary to develop elaborate methods for protection adapted to almost every separate kind of nut and its young tree. One had also to develop methods for preserving nuts properly through the winter, and to acquire knowledge about their sprouting habits. Nuts, like the seeds of most wild trees, have a tendency to wait until conditions of warmth and moisture are peculiarly right before they sprout. They are very different from docile cultivated seeds. Many hybrid nuts of different kinds were lost entirely through their failure to sprout, or through my finally managing

to get them to sprout so late in the year that shoots did not lignify and were killed in the winter. There seemed to be good reasons why the hybridizing of nut trees had not been done by savages and barbarians, since the early days of history. It required several years of experience in the preparation of flowers for crossing, collecting pollen from a distance, keeping it viable, looking after the fertilized flowers, marking them and caring for the resulting nuts and young trees subsequently. There was such opportunity for elaborate mistakes on the part of a beginner that my delight has really been very great in finally developing methods which are successful. Anyone who becomes discouraged instead of getting stubborn and laughing over accidents will drop the subject after two or three years of continuous failure and misfortune. My speculative instinct is at last to be gratified. Some of the hybrid trees will bear prolifically and at an early age, others will hardly bear at all. Some will make wonderful timber, others will make worthless wood. Some of the nuts will be of no value, others will be of considerable value, and a certain percentage of them will be of enormous value. There will be many curious forms; there will be nuts which are too large to be desirable or too small to be desirable,—too thin-shelled or too thick-shelled. There will be trees of great beauty and trees that are ugly. When crossing trees in this way one creates hundreds or thousands of new trees of kinds which have never before been seen by anybody. Some of the trees will resemble one or the other parent. Some will combine the qualities of both parents rather evenly. Some will give freak results. Among the hundreds of new kinds of trees which are developed by crossing the flowers, we preserve and propagate by grafting the few which are found to be of great value.

Dynamiting Nature's Plans

Hybridizing mixes up kinds which nature has carefully kept apart for ages—we dynamite nature's plans—but grafting perpetuates a desirable variety which we have created and wish to preserve. The scions from any desirable tree are grafted into stocks consisting of allied species or varieties upon which the desirable variety proceeds to grow. The scion of a desirable variety perpetuates itself in kind, no matter what the nature of the stock upon which it is grafted, so long as the stock is of a species or variety which accepts the scion. Crossing (hybridizing) consists in artificially bringing two sexes of allied species or varieties together. The result is that gametes or germs of the seed then consist of elements which are made up of characteristics of both parents which have been brought together artificially by placing the pollen or male element of one kind upon the female flower of another kind. When these germs sprout they make strange and new forms of trees, for the reason that the two sexes have been brought together for man's purposes and not according to nature's plan. Nature's plan is to preserve the mean type, while man's plan is to break up the mean type and mould types together for his own use. The sap of the root of the stock has no power to change to any important degree the character of the graft which has been placed upon that stock. If a given stock were allowed to throw out its

The Application of Economies In Spraying

E. F. STEPHENS, Nampa, Idaho

At this moment the Stephens Orchard Co. at Nampa, Idaho, is engaged in applying calyx spray to the three hundred acres of commercial orchard now in bearing.

In order to save time and make rapid progress in the work this company first erected an elevated tank kept filled from a nearby well by a gasoline engine. This elevated tank discharges through a four inch pipe, quickly filling the service tank used in field work. Each of the two spraying outfits has three and one-half horse power engines developing two hundred pound pressure and each outfit equipped with two leads of hose and four Bordeaux nozzles. Each one of these tanks in orchard service is sprayed out in about twenty three to twenty-five minutes. That the three men with each power sprayer may not be delayed in their work each power sprayer is followed by a helper tank wagon filled either from elevated tank or nearby ditch; from the ditch in case they are too far from the elevated tank. To enable the helper tank to discharge its water quickly into the tank of the power outfit, the helper tank is elevated about thirty inches above the bolsters of the service wagon enabling it to empty itself in two and one-half to three minutes through a four inch pipe into the tank of the power sprayer. The helper tank drives alongside of the power outfit, swings its upright four inch pipe over sideways and discharges its tankful of water into the tank of the power outfit while the hosemen are spraying the last four trees or nearly so, causing but little delay to the work of the pipemen. An equipment of this character requires a four inch outlet pipe bolted in the end at the bottom of the helper tank. This four inch pipe has an elbow screwed in and on top of the elbow a four inch tin pipe in two sections gives a length of eight feet reaching from the helper tank to the power outfit and discharging its load as above noted with very brief delay. Equipped in this manner we find that nine men and eight horses can apply four tanks full per hour of 7000 to 8000 gallons per day. The arsenate of lead of the highest obtainable quality costs at Nampa, \$7.60 per hundred pounds. Using eight pounds per tank of two hundred gallons the solution in each tank full costs 60.8 cents. The cost of application per tank full is from 65 to 75¢.

The amount of orchard covered per day depends upon the age and size of the trees. The bulk of our orchards are in five year form; about sixty acres in seven year form and we have sprayed our neighbors trees in twelve year form. In making the calyx spray we use high power and the Bordeaux nozzle in the hope of driving the poison into

the calyx of the apple. At this moment Rome Beauty apples are in just about the right condition for calyx spray.

The next spray will be the foliage spray applied while the eggs are being deposited by the first brood of codling moth, depending on the warmth of the season from the 15th to the 25th of May. This season probably about the 15th of May. A few moths have already appeared but owing to recent storm and cool weather the moths are not expected to be active for some days. It is not usual for the moths to deposit their eggs until the night temperature reaches sixty degrees. This second or leaf spray will be applied in the form of a mist using a different type of nozzle. The object of this particular spray is to coat the foliage with this poisonous solution. The eggs of the codling moth are usually deposited on the foliage of trees bearing fruit. It is expected that the larva which hatches in eight or ten days after the egg is deposited will be likely to eat a little on its way to the apple and be destroyed by the poison absorbed. For the leaf spray we plan to increase the strength of the solution to ten pounds for two hundred gallons making the cost of the arsenate of lead solution per tankful of 200 gallons 76¢.

The third spray we plan to apply when the eggs of the second brood are being deposited using ten pounds of the best arsenate of lead to the two hundred gallon tankful.

Reflections of a Pioneer

Continued from Page 134

own branches as well as branches from graft, then the tree would furnish two kinds of nuts, those of the stock and those of the graft. In order to avoid this we cut off all of the branches from the stock as fast as they appear, throwing all the strength of the tree into the engrafted scion of a kind which is to be multiplied and perpetuated. Incidentally it may be worthy of remark that grafting of nut trees in the North has been so difficult—for reasons known to biologists—that most of the horticulturists had given it up in despair. As a matter of luck I happened to think of the idea of applying the principle of the balanced aquarium for keeping grafts supplied with fresh water. If this method is as successful as present experiments would seem to indicate, it opens a new way for managing some refractory species. Had I not been interested in fish this idea of the balanced aquarium would not have been introduced into horticulture perhaps.

Life Limit of Grafted Progeny

When the scion has made branches, scions may again be cut from these branches and distributed still more widely upon other stocks. Millions of trees may descend from one original graft—perhaps hundreds of millions—as in the case of some popular peach, pear, or apple. Grafted progeny from a parent tree seem to live only about the length

of time that the parent tree would naturally live. For instance, if the Baldwin apple remains as a popular variety for two hundred years and then begins to die out over the entire range in which its grafts have been disseminated, it would seem to indicate that the original Baldwin tree would probably have lived about two hundred years under normal circumstances. The protoplasm which went to make up that variety, we will say, has inherent strength capable of maintaining that variety in many lands and under varying conditions, and yet, when the kind of protoplasm for maintaining the Baldwin variety reaches its natural age limit and becomes senescent, the variety will begin to decline and fade away. If this is a true observation, as seems to be recently agreed upon among horticulturists, it explains why certain varieties of fruits which were famous in former days are not found to-day. (Nations of people follow a similar law.) We shall have to keep making new selections for grafting purposes, but hybridizing will give us an enormous field from which to choose.

Nursery Stock Regulation

Regulation 6 of the rules and regulations of the Secretary of Agriculture governing the importation of nursery stock into the United States, issued July 1, 1914, has been amended by striking out the first sentence in the second paragraph of said regulation and inserting in lieu thereof the following:

Nursery stock, except orchids and tree seeds, from countries which do not maintain nursery-stock inspection, will be admitted into the United States only for experimental purpose and in limited quantities, under special permit through ports designated therein. (See regulation 5.) Orchids and tree seeds may be imported from such countries in commercial quantities under special permit.

Several thousand apple and peach trees and a few pear trees were given away by J. P. Patton of the Oregon Nursery Co., at the company's yards, 315 Sprague avenue, Spokane, Wash., May 6, to children in the home garden contest.

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WIDE APPROVAL OF AMERICAN

We present in this issue additional communications from leading horticulturists of the country upon the subject of an American Federation of Horticulture which has been proposed and discussed in recent issues of *American Fruits*. Almost unanimous has been the expression of opinion in entire favor of the proposition. Some have asked more definite information and many are giving the subject thought before expressing an opinion.

It is true that in our suggestion of an American Federation of Horticulture there was not much of definite plan. This was very largely intentional, for the reason that matters of detail very properly belong to a committee of leading horticulturists. Our idea is that while there is undoubtedly a feeling of friendly sympathy between all horticultural associations, state and district, all are proceeding on strictly territorial lines with little or no regard for national unity. So far as the essential features of the work of the various associations are concerned, this is probably all that is necessary, and they might profitably continue their excellent work for their respective fields, indefinitely. The very fact that there are in existence strong associations of fruit growers in our leading horticultural states, with a thousand or thousands of members each, and of long standing, some of them a half century or more, and in other states associations which number their members in hundreds, leads to the suggestion that if the activities of such influential bodies of fruit growers could be co-ordinated in a central body of national or continental character, its influence would be mighty in matters of legislation, marketing, economic methods, etc., and there would be an esprit de corps resulting in action from time to time along lines somewhat difficult to outline in detail in advance of developments in the progress of horticulture throughout the country. We have no thought of the burden of an additional organization; simply the binding together of the interests, which are common to all, of the existing organizations. It is not even necessary to create the central body; it is here in most appropriate form—the American Pomological Society.

In his communication in this issue Parker Earle, one of the oldest, most prominent and most active leaders in horticulture for several decades, speaks opportunely of the American Horticultural Society which once had an exceedingly useful life of fifteen years, doing the practical things that the practical horticulturists were in great need of a generation or more ago, and which was succeeded by the American Pomological Society. He remarks that the last named society ought to occupy the whole field and do the whole work that was turned over to it to do; and asks: How can it be stimulated and strengthened to broaden and intensify its work?

The answer seems to lie in our suggestion of an American Federation of Horticulture resulting from the affiliation of all state and district horticultural societies with the American Pomological Society as the central body—an affiliation so broad and congenial that not one horticultural association of any kind will remain outside of it. There need be no expense—of time, effort or money—exceeding in any manner the immediate benefits derived, with accompanying development.

Secretary Lake of the American Pomological Society, referring to our suggestion of an American Federation of Horticulture, says:

There is a tremendous field for activity in a Federation of National and State Horticultural societies in phases of the subject entirely outside of the active zones now covered, or that can be anything more than potentially covered, by the local and district organizations now in existence.

Speaking further on this subject, Secretary Lake says:

The fact that the American Pomological Society has devoted its chief attention to the scientific phase of the subject would hardly debar this old and influential body from participating in a movement to foster, promote or develop the economic side of this great industry; in fact, I am sure its membership would cordially respond to a call to co-operate in any substantial effort in behalf of a united national or continental organization, the object of which shall be the betterment of American horticulture economically.

From many points have come expressions by leading horticulturists heartily favoring the proposition to stimulate and strengthen the American Pomological Society to broaden and intensify its work—the whole work which was turned over to it by the American Horticultural Society years ago. President Goodman has announced that he will appoint a committee, at the biennial meeting of the American Pomological Society in Berkeley, California, in September, to consider this subject. He is in full sympathy with the proposition.

We shall welcome further expression of opinion. This is a subject which may properly engage the attention of thinkers in the ranks of fruit growers generally; also nurserymen, florists, seedsmen and all whose interests lie in any phase of horticulture which Noah Webster and Dr. Liberty H. Bailey define as "the cultivation of a garden or orchard; the science and art of growing fruits, vegetables and flowers or ornamental plants."

Speed the Day!

Editor *American Fruits*:

As to the question of solidarizing American horticultural interests, I may say: while in full accord with any proposition of this kind looking to a better and bigger national

horticulture, I cannot speak officially for the American Pomological Society, as this body has not yet considered this specific matter.

As I understand the tone of the article relative to the French Syndicats in the April number of *American Fruits*, the American Pomological Society would be classed with the scientific bodies, while the Federation of American Horticultural Organizations "à la syndicat" would deal more particularly with reference to the economic problems of the industry. The fact that the American Pomological Society has devoted its chief attention to the scientific phase of the subject, however, would hardly debar this old and influential body from participating in a movement to foster, promote or develop the economic side of this great industry; in fact, I am sure its membership would cordially respond to a call to co-operate in any substantial effort in behalf of a united national or continental organization, the object of which shall be the betterment of American horticulture economically.

Personally, there appears to be a tremendous field for activity in a federation of national and state horticultural societies in phases of the subject entirely outside of the active zones now covered, or that can be anything more than potentially covered, by the smaller local and district organizations now in existence.

Speed the day, by whatever legitimate way or means, that will result in a united American horticulture, so organized as to better, to beautify, and to enrich the nation or continent.

E. R. LAKE,

American Pomological Society.
Washington, D. C.

Would Eliminate Bad Feature

Editor *American Fruits*:

I am heartily in sympathy with any movement whereby the pomological interests of the state and nation may be broadened and strengthened. In unison there is strength.

Personally, I believe that for the accomplishment of the most good in Horticulture and for its future development, an American Federation of Horticulture is just as essential as a marketing organization. G. Harold Powell says that a co-operative organization must spring from necessity and the reason for its existence must lie in some vital service which it is expected to perform if it is to have strength enough to live in the face of the competition to which it will be constantly subjected. A centralizing of all horticultural societies into one great Federation, would eliminate future competition, petty jealousies and rivalry.

Apparently this is the opportune time for such an association and to get immediate action, the American Pomological Society should make this a special feature of their program.

C. C. VINCENT,

Department Horticulture.
University of Idaho, Moscow, Idaho.

FEDERATION OF HORTICULTURE

Dr. Batchelor in Favor of It

Editor American Fruits:

Regarding the affiliation of the various horticultural societies of the country, I think much benefit might be derived by all the associations concerned if they were in closer touch with one another through the medium of a well organized national association. I am sure I will be very glad to lend my assistance in bringing about such an affiliation.

LEON D. BATCHELOR,

In Charge of Walnut Investigations,
Citrus Experiment Sta., Riverside, Cal.

Something Worth While

Editor American Fruits:

It was with pleasure that I read your proposition to form an American Horticultural Federation. I see no reason why this shouldn't and couldn't be brought about by and through the plans as suggested by you.

Personally such a federation would appeal to me as being something worth while in the horticultural development of this great country of ours. I believe that the membership of the Texas State Horticultural Society would co-operate very substantially towards the support of such a federation. Our annual meeting is not held until the meeting of the Texas Farmers' Congress, which convenes the first part of August, however, I think it available to have this matter discussed at this time before the membership of our organization. I will be glad if you will keep me posted from time to time regarding the developments and progress in this movement.

G. H. BLACKMON.

Sec.-Treas. Tex. Hort. Society.
Dallas, Texas.

Favored in Vermont

Editor American Fruits:

I am writing to say that I am in favor of the Federation of the Horticultural Societies of this country and think much good may come thereby, but I cannot speak at this early date for the Vermont State Horticultural Society. Personally and officially I should favor the movement. To be sure, the whole matter should be considered carefully by all parties concerned, preferably by a conference, before action is taken, so that oversights may be avoided.

M. B. CUMMINGS, Secy.

Burlington, Vt. Vermont Hortl. Society.

The Old American Horticultural Society

Editor American Fruits:

I have read and re-read your interesting proposition. But I can't see just what you would have done. Are we not already federated in our activities? We once had a great national horticultural society which lived exceedingly usefully for fifteen years. It was started mostly by western men to agitate and to do the practical things that the practical horticulturists were in great need of a generation or more back—the American Horticultural Society. But as

many of us were badly crippled by the panic of 1893 and the two or three years of stagnation that followed, we decided to turn over the work to the American Pomological Society which has since that time broadened its field of activity very greatly. It ought to occupy the whole field and do the work that we turned over to it to do. How can it be stimulated and strengthened to broaden and intensify its work? Or what definite action can be taken that will be better?

PARKER EARLE.

Rosadena, Cal.

Ought to Serve a Useful Purpose

Editor American Fruits:

The Federation of American Horticultural interests with the old American Pomological Society as a center, ought to serve a useful purpose, but America is such a great country, with such a diversity of horticultural interests and so many state and local organizations, that the get-together idea is almost over-worked at the present time.

Our commercial horticulturists are all mighty busy men and are not to be had for public work of this kind and I know from contact with a good many of them that they are shy of taking on any further burdens that are bound to come with any organization of this kind.

Personally, I like to see the wheels go round, but possibly I am getting a little lazy myself and that is why things look to me as they do.

J. H. HALE.

South Glastonbury, Conn.

Pacific Coast Expression

Editor American Fruits:

Some good would undoubtedly be accomplished by the organization you mention as being a possibility, but it would not be possible for us to take any particular part in it, owing to the fact of our location. We are a long way from the center of activity of associations and it is difficult for us to have the opportunity to attend any of the organizations of which the men at present are individually members.

O. M. MORRIS.

State College, Pullman, Wash.

Texas Right in Line

Editor American Fruits:

I note with much interest the discussion of the movement for an American Federation of Horticulture, and the space you are giving to this discussion, as well as the action President Goodman of the American Pomological Society proposes to take in this matter at the coming meeting of this society.

I feel quite sure that Texas is right in line in this movement as two of our veterans have already responded in this discussion—E. W. Kirkpatrick and John S. Kerr.

Our state society has already adopted this federation policy with reference to organizations having to do with horticulture in this state, so that now practically all of these or-

ganizations are affiliated with the Texas State Horticultural Society. For this reason it can be readily seen that we are right in line for this larger affiliation or federation. Success to the movement.

J. H. ARBENZ, Prest.

Texas State Horticultural Society.

Would Be Very Beneficial

Editor American Fruits:

I think that an organization which would bring all of our allied horticultural societies in closer touch with each other would be a fine thing. The number of state, district and county associations is large, but they are not closely enough linked together to accomplish the greatest good for the whole North American continent. I realize that to organize them would take an immense amount of work but in the long run would be very beneficial.

F. N. FAGAN.

Pennsylvania State College.

What Federation Could Do

Editor American Fruits:

I have been much interested in reading the April and May issues of *American Fruits* about the proposed American Federation of Horticulture. It seems to me that you have undertaken a fine piece of work, something which certainly needs doing and which will be very valuable if you can accomplish it.

One thought that strikes me at this time is that of the strength such an organization would be in getting federal and local horticultural legislation enacted. It seems to me that the horticulture people are not working their legislative needs as hard as they ought. Such a federation can handle the general awakening which is so much needed along exhibit lines. I note in this section and other parts of New England, and if I judge correctly the same is true elsewhere, a decreasing interest in local fruit, flower and vegetable exhibitions. The federal association can encourage us by standardizing entry requirements, score cards and prizes. There is an ever-increasing interest in commercial horticulture but aesthetic horticulture is being sadly neglected by that class of people who ought to be interested and encouraging it.

I do not know the best way of forming such a federation but think that something along the line of Mr. Goodman's suggestion or Dr. Bailey's ought to work.

ALBERT R. JENKS,

Springfield, Mass. Horticultural Adviser.

Strongly in Favor

Editor American Fruits:

I am strongly in favor of some such Federation of American Horticultural interests as you propose in your recent letter and am sure that such a central organization would be a great benefit to its members and to all American Horticulture.

WILFRID WHEELER, Secretary,
Massachusetts Board of Agriculture.

American Fruits An International Journal

Nurseries, Arboriculture,
Commercial Horticulture

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ROCHESTER, N. Y., JUNE, 1915

"Horticulture in its true sense is the art of cultivating tree fruits, small fruits, vineyards, nut trees, flowers, ornamental shrubs, trees and plants and all kinds of vegetables. Horticulture is one phase of agricultural activity that is not only necessary for the support of mankind by furnishing fruits and vegetables for his consumption, but tends to make his life more enjoyable by giving him flowers, shrubs and trees to decorate his home, both indoors and out."—Nebraska Horticulture.

Business and Sentiment

Zung Tse Kuzi Woo, reputed to be one of the wealthiest men in China, head of the Chinese coal and iron trust, while in New York recently speaking at a luncheon of the American Manufacturers Export Association, said:

I think our imports from the United States amount to only 10 or 12 per cent. With the changes that will follow in the wake of the war, I earnestly hope we will have more. The poverty of the Chinese masses must be considered by those seeking our trade. The Germans are smart. Knowing our limitations, they accommodate our purchasers and the latter are grateful. Our people have not yet divorced business from sentiment. Courtesy and thoughtfulness do not cost very much. Perhaps their lack has stood in the way of the development of American trade with China.

In his delicate Oriental way Mr. Kuzi Woo has touched upon what we are continually hearing regarding our methods of doing business. It may be that representatives of American business houses assume an attitude in foreign countries different from that which characterizes their transactions at home; and that this is due to a quite widespread feeling on the part of Americans that as soon as they leave their native shores they will associate with those who for one reason or another are not on an equal plane. Of course the really educated American knows better than to assume such an attitude; others will probably find in time that it is directly to their advantage to change their bearing.

It may be profitable for all to consider to what extent this Chinese comment applies to transactions between business men in America, aside from connection with transactions by Americans abroad. Courtesy and thoughtfulness do not cost very much, as our distinguished visitor has said. We believe their practice is becoming more and more general in this country, and that a breach of their observance is working more and more directly to the detriment of the offenders, thus tending to establish the higher plane naturally.

If it relates to Horticulture it is in "American Fruits."

Leaf Disease of Nursery Stock

The losses in nursery stock caused by various plant diseases are sometimes very heavy. Fire blight, for example, will destroy all the stock attacked unless it is eradicated by cutting out the affected parts of the plants. Some other diseases affect the leaves only, and by causing them to fall prematurely, prevent the normal growth and development of the plants. Methods of control which are effective on larger trees and bushes cannot be used in the nursery, and, on the other hand, methods used in the nursery are of no service for mature plants. For this reason, a special study of the principal leaf diseases of nursery stock has been made at the Cornell university agricultural experiment station, and its results are given in Bulletin 358, just issued.

Nursery apple stock is liable to attack by scab and powdery mildew; pear stock, to attack by scab, leaf-blight, and leaf-spot; cherry and plum, to yellow-leaf disease, and the former to powdery mildew as well; currant and gooseberry stock may be attacked by anthracnose and leaf-spot, and the latter by mildew also; peach is subject to peach leaf-curl, some varieties apparently being more susceptible than others; and quince is subject to leaf-blight. In addition to this fruit stock, many horse-chestnut trees in nurseries are greatly injured by leaf-blotch, and nursery rosebushes are subject to black spot and mildew.

The bulletin describes experiments in the use of various spray mixtures, with the results obtained. Practicable spraying machines also are described and illustrated. By far the greatest part of the bulletin, however, is taken up with a discussion of the diseases named above, each disease being considered in detail as to its symptoms, cause, and control.

The bulletin may be obtained by residents of New York state on application to the college of agriculture at Ithaca.

Nursery Convention

Nurserymen of the country are interested especially in the annual meeting of the American Association of Nurserymen to be held at the Hotel Cadillac in Detroit, Mich., June 23-25. President Chase expects a large attendance. Chairmen Burr and Ilgenfritz of the programme and entertainment committees have been busy for some time on plans. The preliminary programme was published in the May issue of *American Fruits*. The completed programme will not be materially different. Ample entertainment features will be provided. The occasion affords opportunity to make and renew pleasing acquaintances, to exchange some stock and to talk over business matters incidentally. Not much that is of permanent value is expected to be done. Probably the 40th convention at Detroit will be as mildly successful as its thirty-nine predecessors. An aggressive, influential organization is still hoped for at some time, by the more progressive nurserymen of the country, many of the leading ones not being dependent upon the national association as an exponent of their views, since several influential district organizations are in full swing.

We have suggested many times ways in which the national association could be all that its name implies. We note with interest that Mr. Mayhew, of Texas, is on the Detroit programme for an address on the subject of a better national association. What he may have to say should receive more than ordinary attention.

Ethan A. Chase to Test Mulching

E. A. Chase of Riverside, at the head of the National Orange company of that district, which has 1500 acres in citrus fruits, was in Covina, Cal., on May 4, spending an entire afternoon in company with James R. Hodge, horticultural inspector of one of the Covina districts. With Mr. Chase was A. D. Shamel, pathologist of the United States federal department, whose work is being done at the Riverside station.

Mr. Chase was in Covina to inspect the results of two years of mulching citrus trees, a report of which was recently made to the Riverside experiment station by one of its experts. The particular experiments are to be found on the ranch of A. B. Howell, east of Covina city, and on a few acres belonging to J. H. Rohrer. This mulching system has been carried on under the supervision of Mr. Hodge.

As a result of inspecting the work, and because of the favorable reports made by federal and state experts, Mr. Chase said while in Covina that he intended to mulch 400 acres of his citrus property and give it a thorough test.

Florida Horticulturists

The twenty-eighth annual meeting of the Florida Horticultural Society was held April 13-15 at Tampa, President H. Harold Hume, presiding. Papers of greater interest than usual were presented and the discussion and reading of numerous committee reports made every session lively. The efforts of legislators in behalf of a crop pest bill were endorsed and 200 telegrams were sent to them urging passage of the bills. The Growers and Shippers' League met with the Society. Among the speakers was Dean Liberty H. Bailey, of Ithaca, N. Y. President Hume, Secretary Painter and Treasurer Hart were re-elected; also Messrs. Rolf, Hubbard, and Taber of the executive committee. The next convention will be at Arcadia.

Massachusetts nurserymen last month scored a strong point against the "substitution" charge. A correspondent of the Rural New Yorker sought to obtain a Deacon Jones apple tree and was unable to procure one from any nurseryman in and about Boston. Commenting upon his experience the Rural New Yorker said editorially: "Has the millennium started in the old Bay State? And Boston is the headquarters for our old friend Whiting too! The original Deacon Jones might possibly have delivered a Northern Spy rather than let the order pass. He would have had ten or twelve years before the misfit was apparent! What seems to be the matter with these Boston nurserymen, that they cannot go to a bundle of trees and pick out any variety you want? Is the Yankee forgetting how to swap jack knives? At any rate the true Deacon Jones apple is all right."

A good deal is heard nowadays of the "guaranteed advertisement"; that is to say the advertisement behind which the publisher agrees to stand in case a reader is subjected to loss in negotiation with the advertiser. What about the publication whose standard is so high it will not publish deceptive advertising, any more than it would publish deceptive editorial matter? Is it necessary for an honest man to appear in public only with a conspicuous label: "I am honest"?

Just say you saw it in *American Fruits*.

Peach Raising a Question of Race

Editor American Fruits:

In my boyhood days I resided near your city. I took consumption when I was 21 years of age and was compelled to hasten to the far South or die. I reached southwest Texas 64 years ago, when it was a wild Indian frontier.

I recovered rapidly and was entirely cured by the climate in a few months. My natural instinct from childhood had been pomology. So while roaming around in the forests and prairies my attention was easily drawn to such fruits as I incidentally found—although but few of which then could be seen. Pecans were abundant—but all other fruits were of inferior quality. Rarely I found plums that were worth gathering—and nearly all other were almost worthless.

A few people had obtained peach trees and other fruit trees from the far North and planted them at their scattered homes. But I never saw a peach or plum tree from the Far North that became successful in the coast region of South Texas.

But one day as I was roaming near the Guadalupe river about fifteen miles from the Gulf of Mexico, I saw a peach orchard of about forty trees, all well loaded with fruit. I went to the small log house near by and asked the resident where his peach trees came from. He told me that he got the seed from Central Mexico. It was easy to see that the general appearance of the trees was very different from any other peach trees that I had seen in South Texas. The question of race took hold of my mind immediately.

As soon as I could procure land of my own—for which I paid one dollar per acre—I began an experimental station. I obtained peach trees from different parts of the United States—from Mexico, China, Japan, and planted them side by side to test the question of race.

I also obtained plum trees from the Far North as well as from the Indian border of Texas. None of my northern plum trees ever produced any fruit. None of my northern peaches were successful. I ran my experimental station for about forty years in connection with the small nursery. I found that I had five distinct races of peaches—only two races of which were well adapted to our climatic conditions. Some varieties of peach trees died of old age without ever producing fruit. Others would produce from about a half dozen to twelve or fifteen peaches.

I had found that peach raising was a question of race. I sent a few trees of our southern races to a friend in Central New York. They failed.

Although the peaches and plums of the Far North are total failures in our low latitude of 28, yet as we go northward we observe a change. Northern races of peaches are doing well in North Texas, while they are not worth planting in sub-tropical Texas.

GILBERT ONDERDONK, SR.

Nursery, Texas.



GILBERT ONDERDONK, Nursery, Texas

American Association of Nurserymen

The Detroit Convention

Editor American Fruits:

This will be our 'last chance' through the medium of your publication, to make further mention of the forthcoming fortieth anniversary of the American Association of Nurserymen. If every member in 1914 renews his membership for 1915 the roll will not be far from the five hundred mark, and the Detroit Convention, June 23-25, will set a new pace for the organization.

For the benefit of those whose names will not be bound in the Badge Book there still remains an opportunity to be counted in, and such as now awake to the importance of doing so will have their names printed on leaves to be handed out at the convention ready to be inserted in the Badge Book. Now, belated nurserymen, do your duty to yourself and to the trade by at once sending to the Secretary the five dollars necessary to place you on the list.

The program bristles with valuable material, the speakers being such as will afford vital interest to every man in attendance.

Of course there is to be some provision for recreation. If we were relentlessly held to the "everlasting grind" of business what uncanny-looking specimens of humanity we should be. The Creator of the world made large provision for the enjoyment of him whom He "made in His own image," and it is eminently befitting and legitimate that the men who live as close to Nature as do nurserymen shall avail themselves of such excellent opportunities for relaxation as are afforded by the natural beauties of landscape and river and lake by which the "City Beautiful" is surrounded.

We urge upon members to call early upon their local ticket agent and learn the best plan of reaching Detroit. Bring the "missus" along, too, that she may share in the joys of the event with other ladies.

Forget your troubles, drive pessimistic wanderings to the winds, and go to Detroit with the determination that you will make the most of this convention occasion by absorbing all there will be of value and interest to those who are looking for the best.

JOHN HALL, Secretary.

Rochester, N. Y.

"A paper which gives the best value to the reader will give the best value to the advertiser as well. I don't think there is any argument about the soundness of this view."
—H. Dumont, Chicago, Ill., in Printer's Ink.

Apples the Consumer Wants

E. F. STEPHENS, Nampa, Idaho

From 1871 until 1911-12 I was engaged in the nursery work at Crete, Nebraska, forty years. There I studied economies of production of nursery stock. By keeping book accounts of all work applied to each plat, handled under varying method and by developing machinery adapted to the work, I was able to reduce the cost of growing forest seedlings from 60¢ to 20¢ per thousand trees.

Raw prairie sod was broken and prepared and developed into a good seed bed at a cost of \$11 per acre. In the growing of ash seedlings for which there is a great demand in timber claim work, I planted 20 bushels of seed per acre in drills 22 inches apart. Frequent cultivation developed plant food and conserved moisture. In October these trees were cut under by the tree digger, pulled, graded, counted, tied in bunches of 100 each and heeled in on the yard at a cost of 20¢ per thousand trees, fifty trees for a cent. I grew thirteen million trees in one season and purchased five million more to supply my trade for the season.

This result was secured by the elimination of lost motion and by such methods of preparation and tillage as allowed to grow two hundred thousand merchantable plants per acre.

In Idaho in the growing of commercial apples it is of supreme importance that we should handle our work in up to date ways, eliminate all waste and lost motion; use up to date machinery and appliances; endeavor to grow apples at a cost not to exceed ten cents per bushel; to pick the apples from the tree, haul them to the packing house, run them through automatic sizers or graders, and place them on car at a cost of not to exceed 25¢ per box cost on car in readiness to ship.

Fruit run over a sizer and grader of the type used by the Manville Fruit Co. can be automatically placed in boxes and with a little additional labor made ready for the naller with a minimum amount of hand labor. A comparison of returns received for the crop of 1914 indicates that those who placed their fruit on car with the least initial expense in very many cases, received the largest net returns. A goodly proportion of the consumers of apples in the United States hesitate to consume apples freely unless they can purchase them at a \$1.25 per bushel or less. There is a limit to the demand for extra select fruit at a \$1.50 to \$2 per box. It is legitimate to paper wrap the apple for the extra fancy class of trade. Eighty per cent of the people of the United States, however, are more strongly influenced by a moderate price than by extra fancy quality and pack.

Well Packed Nursery Stock

One of the lessons of the European war is seen in the following letter received by a nursery firm of Orleans, France:

Stavanger (Norway), 11-3, 1915.

Gentlemen—We have today the great pleasure to inform you that the parcel containing 115 Reine Claude Noire Plums sent from you on December 8th last year, is today arrived here after over three months' journey, having probably most of the time been lying in Newcastle waiting for documents to be sent on. The remarkable thing about it is that the trees are as fresh and sound as if packed a few days ago, thanks to the really splendid way you have packed them. We would hardly believe that they were still fresh and not as we certainly expected, dried up and useless.

Yours faithfully,

B. R. P.

COMING EVENTS

Texas Horticultural Society Meeting—College Station, Tex., July.

Kansas Horticultural Society—Topeka, December.

American Association of Nurserymen—Detroit, June 23-25.

American Pomological Society—Berkeley, Cal., Sept. 1-3.

Western Washington Fruit Growers' Association—Olympia, Wash., Feb., 1916.

American Apple Growers' Association—St. Louis, November.

Almond Culture in Detail

From the Original Lecture Notes of the Late Professor John Craig---Edited by Dr. Leon D. Batchelor, University of California, Citrus Experiment Station, Riverside.

THE botanical name, *Amygdalus*, is derived from the furrowed character of the stone, pit or nut. This name almond is applied to certain tree forms which are closely allied to the peach, plum and cherry. It is essentially one of the pit or stone fruits. There are those who believe that it is the original type from which the peach has descended. The only difference between the almond and the peach is that in the one case we eat the kernel, and in the other we eat the pulp which surrounds the nut or kernel. In the case of the peach we have a leathery husk transformed into a juicy mass of flesh material. In the case of the almond we have a leathery covering enclosing a hard shell, which in turn encloses the kernel which forms the edible portion.

Botanical Characters—There are several types and forms of the almond. Some of these are entirely valueless from the fruit-bearing standpoint. The most common types are the fruit-bearing ones, but it is worth while noting that some of them produce attractive flowers and are cultivated purely for their aesthetic or ornamental characters. The flowering almond is noted, and there are several forms of this, viz., double-white, single-white and pink; also others which have variegated leaves. There are dwarf forms and tall forms. These variations usually come more strikingly when man changes the environment of the plant than they do in their native haunts.

History—The almond is found growing wild at the present time from Mesopotamia and Turkistan to Algeria. It is also found in the Caucasian mountains and on the coast of Sicily and Greece. It is certainly a fruit of great antiquity in Eastern Asia. The name is found in Hebrew, Arabic, Persian and Greek. It was known apparently to all these nations, and in horticultural writings the almond has a place of great antiquity. It was appreciated and well known to the Romans. In the time of Pliny, the almond was called the Greek nut, which suggests that it came from the Greeks to the Romans. In Western Asia it may be regarded as indigenous from early and, we may possibly say, pre-historic times. There are two general classes of almond which are cultivated at the present time in Europe and in this country. These are the sweet and the bitter, and they are both known to the ancients, both having been spoken of by the Hebrews and Greeks, so we can see at least these types have come down unchanged in a large degree. In America we have no definite knowledge of the introduction of the first almonds into this country, but undoubtedly their arrival was coincident with the Spanish colonizers in the regions where they came. Undoubtedly the New Englanders brought over trees or nuts, for the almond tree is grown on walls and in sheltered positions in England. No where in the United States has it become commercially established, except on the Pacific coast.

Adaptation—The tree is slightly less hardy than the peach. It is hardy enough, however, to have encouraged people from time to time to attempt to grow it where the peach is grown. Needless to say, these efforts have in the main been unsuccessful, for the almond has the unfortunate habit of waking up at the first suggestion of the arrival of spring and opening its blossoms cheerily, when they are often nipped by frost. The greatest bane and check on almond culture in this country is probably that of injury by late spring frosts. The range of adaptation, so far as growing the tree is concerned, is almost as wide as the peach; but the range of adaptation, so far as commercial success is concerned, is much narrower. In the early days it was thought that almond culture would be practicable in the East Chesapeake Peninsula and in the State of New Jersey, but frequent trials and as many failures have pretty well settled that question. The almond is grown for two purposes, viz., the production of edible nuts, and the production of prussic acid and other extracts which are taken from the kernel of the bitter type. The softer shelled, sweet forms are grown for their edible kernels. The difficulties in almond culture, in part at any rate, are twofold: first, the early blooming habit of the almond which brings it into difficulty with climatic conditions; and second, self-sterility.

Propagation—Anyone who knows how to propagate the peach tree can propagate the almond with equal facility. The almond is a very rapid grower, like all members of the peach family. Yearling trees only are used for orchard purposes.

The Soil—Light, well-drained loam is necessary. The characteristics of soil are very much like those required by the peach. Heavy soils are unfavorable for the peach, and if heavy the greatest care possible must be exercised in removing all surplus moisture. The almond is very particular in this respect, and soils which have wet or heavy sub-soils are distinctly unfavorable.

The Site—The site should be elevated, with both good air, and water drainage. Early warm nooks, or pockets, as the orchardist calls them, are to be avoided. Any place which will bring about excessively warm conditions during the spring period, should be carefully avoided. Any condition which will tend to retard the blooming in spring may be regarded as favorable for the growth of the tree.

The trees are set in the orchard at distances from twenty to twenty-four feet apart. The first year's growth is quite vigorous, and probably five, six or more branches are thrown up. In the dormant period the pruner cuts the branches back to within a foot of their base. This develops lateral branches on those cut back and the result is also another vigorous growth. The second season's pruning again in the dormant season during the winter is a severe cutting back ac-

companied by a thinning out of the branches to a remarkable number with a view of making a vase-shaped head. Growers differ in their practice in reference to how much they will open up the heads of the trees, but this practice ought to vary in reference to the character of the site, light and heat conditions. The more heat experienced (and this is a general principle in pruning) the closer the top ought to be; and the less light and heat one encounters, the more the top should be opened. This applies to the apple trees as well as peaches and almonds.

Cultivation—The tree should not have any competitor. The almond grower, as the apple grower, knows that he must apply plant food, and that one of the best ways to apply it is through the medium of nitrogen-collecting crops—by using cover crops. Tillage is carried to midseason and then expect the cover crop to take up the soluble or available plant food in the soil. In this way the nitrogen and humus is returned, and the physical make-up of the soil improved. The practice, then, of clean tillage with cover crops is as important.

In the growing of the crop, the fruit grower should watch his orchard very carefully to see that tillage and water are applied at the right time, because nuts, like other fruits, will grow to a certain point and stop unless they get more food, and much depends on the skill with which water and tillage are applied the latter part of the season. Several additional cultivations will very materially affect the size of the product, and there is where our profit lies in nut growing as well as in fruit growing of the other type.

In gathering the nuts, the almond grower spreads canvas beneath his trees on the ground; the trees are shaken, the nuts fall on the canvas and are collected from thence. Not all of the nuts will shake off and the remaining specimens are usually knocked off by slender poles (like fish poles) and then picked up. The picking is done after the hulls crack open, but before the nut within becomes discolored as it is likely to do in a short time owing to atmosphere conditions. Fogs at night or during the day time and light rains will discolor the nuts and thus lower their market value.

The next process after gathering is hulling because the hulls will cling to the nuts. This is done by a mechanical device somewhat after the fashion of a fanning mill. The nuts are run through and separated from the leathery pericarp or hull, in the same way that the chaff is separated from the grain.

Then comes the bleaching. After the nuts have been hulled they are dried in the sun. When this open air process is going on they are covered at night. After they are thoroughly dried, they are sulphured to bleach them. Sulphur is the common agent used.

Continued on Page 145

*and any you saw it in AMERICAN FRUITS.

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LITERATURE

The Art of Landscape Architecture—Its Development and Its Application to Modern Landscape Gardening. By Samuel Parsons, Fellow of the American Society of Landscape Architects, author of "Landscape Gardening," etc. With 57 illustrations. Decorated cover; 8vo., pp. 347. \$3.50. New York and London: The Knickerbocker Press, G. P. Putnam's Sons.

Although there are several authoritative books on landscape gardening, there is demand for a work of wider scope, which shall discuss the arrangement of elementary materials on a comprehensive plan. Like the master builders in wood, stone and iron, the landscape architect has his standards of workmanship. These are subtle and difficult to establish and explain because they are dependent for their value on the growth of living things. Good artistic design and craftsmanship are instinctive, and it is argued that the art of landscape architecture is not subject to the application of hard and fast rules as is a science. The value of a book on the subject by so recognized an authority as Samuel Parsons is therefore evident. The object of this book is to set forth the underlying principles of the practice of landscape gardening and to sustain the exposition of these principles by the citations of passages from at least one hundred well-recognized authorities in various ages and countries. The chapters consider lawns, plantations, roads and paths, grading, rocks, water, islands, location of buildings, laying out of grounds, scope and extent of estates, maintenance, gardens and parks, and fences or enclosures, and give many practical suggestions as to their treatment. The introduction considers among other things the history of the evolution of landscape gardening from early days to the present time, and all through the book appears the basic idea that the study of landscape gardening should be intimately related to Nature and her method of revealing herself.

Horticulture has developed so rapidly in late years that the real essence of landscape gardening has been lost. The ignorance of the general public on the subject is shown by the lack of interest in the writings of the greatest of landscape gardeners, Whately, Repton and Prince Puckler, the last named having not even been translated into English. Whately has been read in no new edition for more than one hundred years. Repton, after almost an equal length of time, has been published by Houghton & Mifflin in an edition by John Nolen, a well-known landscape architect of Boston. The work of Mr. Parsons, therefore, ought to attract not only the interest and study of those to whom landscape architecture especially appeals, but also the general public as affording opportunity to become posted upon standard methods and results to the end that artistic grounds may be appreciated and more generally demanded. For this reason this book should have wide reading; indeed, it may well be recommended by nurserymen and landscape gardeners and architects on all occasions. A knowledge of its contents by the public would directly benefit the horticultural trade.

Aside from the highly interesting treatment of the subject by the author whose experience has had wide scope in working out problems on parks and estates not only in Central Park, New York, but in different estates and parks of America and who has studied many examples both at home and abroad, the book is beautifully produced by the publishers. Among its valuable features is a bibliography which for the reasons already stated should do much toward dispelling lack of knowledge on a most interesting subject.

An American Fruit Farm—Its Selection and Management for Profit and for Pleasure. By Francis Newton Thorpe, Member of the State Horticultural Association of Pennsylvania. With 21 illustrations. Cloth; 8vo. \$2.50. pp. 348. New York and London: The Knickerbocker Press, G. P. Putnam's Sons.

This volume is a record of successful fruit-farming for more than a quarter of a century. It adheres closely to experience, with

valuable explanations and comments, constituting a reliable treatise on the subject of horticulture. The author, a man of wide observation and experience, tells how to select land for a fruit-farm, and what to do after the selection,—how to prepare the land, how to plant the fruit-stock, how to care for it under cultivation. He goes further: he relates the obvious results of successful horticulture—profit and pleasure.

In his foreword the author says the fruit farm of which this book is a record lies in Lake Shore valley on the southern shore of Lake Erie, in Pennsylvania, a region rich in horticulture. The book is a record of many years' experience at home, of much observation abroad, and is offered as a modest contribution to a subject of greatly increasing interest. "Horticulture in America," he says, "is opportunity, but as yet we are merely at the threshold of knowing how to use the land."

The practical nature of the book is indicated in this summary of its contents: Time and the Tree; Selecting the Fruit Farm. The Planting of the Fruit Farm; Getting Along with Help; Cultivation; Feeding the Land; Ten Thousand a Year; Birds and the Fruit Farm; The Fruit Farm and Old Age. Illustrations from photographs taken on the farm add much to the interest. The entire book is a stimulus to intelligent, profitable, pleasure-giving fruit growing. There is much of philosophy in the author's observations. The book will be a valuable and interesting addition to the library of the progressive fruit grower everywhere.

Citrus Fruits—An account of the Citrus Fruit Industry with Special Reference to California Requirements and Practices and Similar Conditions. By J. Eliot Coit, M.S.A., Ph.D., Professor of Citriculture in the University of California. With 151 illustrations. Cloth. 12mo. pp. 520. \$2.00. The Rural Science Series. New York: The Macmillan Company.

The reader is at once struck with the comprehensiveness of this work. There would seem to be scarcely any phase of citrus growing not touched upon by the author who has had wide experience in this special field. The citrus industry has reached a high state of development both in California and Florida, with promising beginnings in Texas and Louisiana, and even in Alabama. Old World practices and precedents have been largely ignored in the development of an industry characteristically American. The literature has hardly kept pace with the

industry and is scattered through a large number of periodicals and reports; on this account it is largely unavailable to those who need it most. It has been the aim in the present work to describe the industry as it is today. This illuminating account of the great citrus industry shows how oranges, lemons and grapefruit may be successfully grown and their culture made to yield a profitable income. The volume contains the most practical and up-to-date information and advice on all phases of the subject. Propagation, tillage, the combating of insects and diseases and the handling and marketing of the fruits are all considered. The illustrations not only add to the attractiveness of the work but supplement the text and emphasize many of the author's points.

The opening chapter on the history and development of the citrus industry is followed by one on citrus geography and climatology of California and this is succeeded by discussion of citrus botany, gross structure and habits of growth. Varieties, the citrus nursery, inspection, breeding, judging fruits, planting, cultivation, pruning, orchard heating, harvesting, diseases, by-products, are subjects of other chapters. A bibliography, admirably classified, occupies 42 pages, and is one of the most valuable of the reference dex add much to the book's value. It is a timely and worthy publication in every respect.

Electricity on the Farm—Light, Heat and Power by Inexpensive Methods from the Water Wheel or Farm Engine. By Frederick Irving Anderson, author of "The Farmer of Tomorrow." Illustrated. Cloth; 12mo. \$1.25. New York: The Macmillan Company.

The tiny, unconsidered brook that waters the farm pasture frequently possesses power enough to supply the farmstead with clean, cool, safe light in place of the dangerous, inconvenient oil lamp; a small stream capable of developing from 25 to 50 horse power will supply the farmer, at practically no expense beyond the original cost of installation, not only light but with power for even the heavier farm operations, as threshing; and in addition will do the washing, ironing, cooking and at the same time keep the house warm in the coldest weather. All this is described in the book in question, and in the simplest and most practical manner, with illustrations to make it clear. For those not fortunate enough to have water power there are chapters on the use of the farm gasoline

Continued on Page 143

Just say you saw it in AMERICAN FRUITS.

AT THE CONVENTION

Please Have a Quiet Talk with Our
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**H. P. ROSES, CALIFORNIA PRIVET,
PEACHES, APPLES, ASPARAGUS
ROOTS and a long list of ORNAMENTAL
SHRUBS**

**C. R. Burr & Co.
Manchester, Conn.**

Economics of Marketing

E. F. STEPHENS, Nampa, Idaho

A recent survey of orchards of Idaho made under the direction of Chief Inspector C. K. Macey indicates about 38 thousand acres of Jonathan apple trees and more than one hundred thousand acres of apple trees in the commercial orchards of Idaho. While the Jonathan apple forms 38 per cent. of the prospective apple crop in Idaho the Jonathan in the United States forms only 3 per cent. of the total crop in the United States.

While the Jonathan if picked early in September can be kept until April as indicated by the experience of B. F. Hurst of the Manville Fruit Co. and by samples which the writer is giving away from time to time it does not seem wise to store the Jonathan until midwinter because it would then stand in the way to the Rome Beauty and the Winesap, varieties which ought not to be marketed until midwinter, in the case of the Rome Beauty and until March, April and May for the Winesap.

The public has been led to expect that the Jonathan will be marketed in October, November and December, making way for other varieties at mid winter. Marketed in October and November the Jonathan is competing with bulk apples from Nebraska, Kansas, Colorado, Arkansas, Missouri and also with the boxed and barreled apples from other districts. To successfully market the Jonathan during the last three months of the year grown, the lower grades of the Jonathan should be placed on car and marketed with the least possible expense. We should seek all possible economies of growing, picking, packing, and placing on cars. In 1910 B. F. Tussing, of Fruitland,

Idaho, succeeded in growing a crop of apples at a cost of six cents a box. Less successful growers and less productive orchards may find that it costs from ten to fifteen cents per box to grow fruit of merchantable quality.

Freight to Missouri River points, cost of crate or box on car not far from twenty cents, total 57½¢. Cost of selling at destination an average of 10¢, total 67½¢. During the fall of 1914 fruit of this character sold in Nebraska and Kansas at 75¢ to \$1.00 in box, basket, bulk and bushel indicating that even in the glutted years of the country the mechanical sizer will enable us to secure a small return for the lower grades of Jonathan and a larger return for the higher grades and for the late keepers.

Western New York Prospects

Many leading evaporator-men have been taking long automobile trips throughout Western New York for the purpose of investigating the prospects for an apple crop the coming season. The consensus of opinion is that the crop throughout Western New York will be the lightest in four years. While the early varieties and Greenings have blossomed full, the Baldwin is extremely light. In visiting the celebrated Collamer orchard at Hilton, it was estimated that not 25 per cent. of the trees were in bloom. With these conditions in sight, evaporator-men are expecting higher prices for evaporated apples the coming season than last.

Two hundred varieties of trees and shrubs are being grown in a one acre forest nursery on the campus of the University of Washington. Professor Burt P. Kirkland of the college of forestry, who is in charge of the young grove, plans an arboretum that will rank with the largest in the country, furnishing objects for study to botanists, pharmacists, foresters and landscape gardeners.

The best evergreen trees for home grounds in New York, according to Professor R. W. Curtis of the landscape art department of Cornell, are white pine, red pine or Norway pine, and hemlock. All three of these are native and are generally adapted to local conditions. While it is stated that the hemlock is usually the most expensive to buy and has the slowest growth, yet it has the finest foliage and most graceful habit of any of the eastern evergreens. When clipped it makes the best evergreen hedge that can be grown.

Imports of nursery stock into the United States in March this year were valued at \$307,655 as against \$328,648 in March 1914. For the nine months ended with March, imports of nursery stock for three years were valued: 1913, \$2,888,305; 1914, \$3,236,261; 1915, \$3,489,547.

Seattle banks are closing up a deal for the financing of the Wenatchee apple crop, \$500,000 being involved in the transaction. Nine banks have already signed for \$425,000 of this amount and the balance is now said to be in sight.

It is estimated that close to 3,000 acres were set to fruit trees in the Hanford, Cal., district this spring. The majority of the new orchards are in cling peaches and apricots, although many prunes and grapes have been planted.

Placing Spokane Fruit

Announcement of plans for the establishment of a central assembling warehouse in Spokane for the fruit of the Spokane district, of complete independency from commission houses and present sales agencies and permanent withdrawal from the North Pacific Fruit Distribution was issued last month by the Spokane Fruit Growers' company through its general manager, P. R. Parks.

Accompanying the announcement is the statement of plans for the organization of a sales agency for Spokane fruit which will extend into every market of the country, operating in charge of L. J. Blot, who resigned from the sales force of the distributors after two years of service as manager of the Minneapolis territory.

Announcing briefly his policy, Mr. Blot said:

"If we can not find suitable markets for Spokane fruits west of the Mississippi, then we will go into the territory east of the Mississippi. But first we will attempt to work the nearer centers of distribution and outlets for the fruit of this district. No market which can add to the profits of the growers will be left unworked, regardless of where it is situated.

"California is rapidly becoming a consumer of northwestern apples and I feel that my long acquaintance with the Los Angeles and San Francisco markets will enable us to take considerable tonnage into that field. Los Angeles is today the best market of its size in the country for our Jonathans."

N. C. Peach Seed

**\$1.25 per bu. 50 lb.,
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No one has better seed, very few as good.

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POMONA, N. C.

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WHAT WE HAVE

we have hundreds of half-tone illustrations and photographs of economical and ornamental plants, fruits and flowers, orchard and garden scenes, all suitable for catalogue illustrating. Subjects printed in colors by three-color process. Designs furnished.

WHAT WE CAN DO

we produce hundreds of seed and nursery catalogues and booklets, innumerable striking effects in high-grade commercial stationery. Something learned from each goes to making the trade-pulling power that we will apply to your catalogue or stationery.

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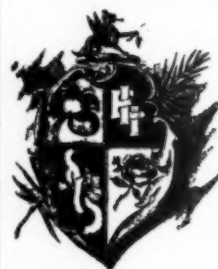
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200 Acres Trees, Shrubs, Evergreens, Vines and Roses

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Fine Stock of
Rhododendrons, Kalmias and
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FRAMINGHAM, MASS.

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St. Regis, Herbert, Eaton, Perfection, Loudon, Miller, Ruby, Marlboro and Cuthbert (Reds) Golden Queen (Yellow) Raspberry. Also have acreage of each in Royal Purple, Shaffer's Colossal, Haymaker and Columbian (Purple), Cumberland, Gregg and other Black Cap for tip plants. Also Strawberry Plants in leading variety, including Fall bearers. Write your wants and

**TRY HATHAWAY FIRST****Grape Vines**

If you are in the market for fancy stock I have it

Concord, Moore's Early and Niagara in large quantities**Fairfield Nurseries**

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In choice young ornamental Nursery Stock for transplanting lining out, or mail orders? If you are, get next to our Trade List of genuine bargains, in Oriental Planes, Nut Seedlings, Oaks, Ash, Catalpa Speciosa, Honey and Black Locust, in large quantities, besides hundreds of other varieties, both deciduous and evergreen. Peach Trees Dahlia Bulbs, etc., etc.

ATLANTIC NURSERY CO., Inc.**BERLIN, MARYLAND****WANTED—Tree Seeds of all kinds**

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Headquarters for
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1200 Acres
"At It 25 Years"

Strawberries Currants Rhubarb
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100,000 transplanted raspberry, blackberry and dewberry plants for retail trade. See wholesale list before placing your order.

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Grower and Exporter of

Fruit Tree Stocks, Forest Tree Seedlings, Rose Stocks, Shrubs, Vines and Conifers for Nursery Planting

Information regarding stock, terms, prices etc. may be had on application to Mr. Detriche's sole representative for the United States and Canada:

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40 ACRES sold to Europe, America and other best everbearers. Not acquainted offer for testing. Send us 10c for mailing expense, and we will send you 6 high quality everbearing plants (worth \$1) and guarantee them to fruit all summer and fall, or money refunded. Catalogue with history FREE if you write today.

THE GARDNER NURSERY CO.
Box 107 OSAGE, IOWA

Just say you saw it in AMERICAN FRUITS.

Literature

Continued from Page 141

can scarcely afford to pass by a book of this kind; its suggestions are pregnant with ideas for labor-saving methods.

Standard Cyclopedia of Horticulture—A Discussion for the Amateur and the Professional and Commercial Grower of the Kinds, Characteristics and Methods of Cultivation of the Species of Plants Grown in the Regions of the United States and Canada for Ornament, for Fancy, for Fruit and For Vegetables; with Keys to the Natural Families and Genera, Descriptions of the Horticultural Capabilities of the States and Provinces and Dependent Islands, and Sketches of Eminent Horticulturists. By Dr. L. H. Bailey. Illustrated with Colored Plates, Four Thousand Engravings in the Text and Ninety-six Full-page Cuts. In six volumes. Volumes I, II and III issued. Green cloth; 4to. \$6.00 per volume. New York and London: The Macmillan Company.

Volume III, covering the letters F-K, of this standard work has just appeared, uniform with the first two volumes heretofore noticed in these columns. The title description and the fact that it is the work of Dr. L. H. Bailey are sufficient to establish its reputation and importance. For the information of those who would know something in detail of this monumental work we would say that a prospectus and particulars of our special offer, under which the cyclopedic can be obtained on partial payment plan if desired, will be sent upon request of the Manager of American Fruits Publishing Company, Ellwanger & Barry Bldg., Rochester, N. Y. Among the full-page plates shown in Volume III are these in color: Formal Gardening, Ferns in a Public Garden, "Peace" Gladiolus, Niagara Grape. There is also a full-page plate of a fine Black Walnut tree illustrating the article on Juglandaceae. Under "Horticulture" in the new volume is an interesting historical summary of the development of fruit, flower and vegetable growing. To this is appended a very comprehensive article on the literature of horticulture in which appears a list of horticultural books and periodicals published in this country, many of which are out of print. Reports of horticultural boards and societies are also listed. Another very interesting and valuable feature of this volume is the series of sketches of lives of prominent horticulturists, with numerous portraits, including John Adlum, Patrick Barry, P. J. Berckmans, Elbert S. Carman, John Craig, Robert Douglas, A. J. and Charles Downing, Andrew S. Fuller, Samuel B. Green, Peter Henderson, F. M. Hexamer, T. T. Lyon, T. V. Munson, William R. Prince, Henry Shaw, H. M. Stringfellow, John J. Thomas, Grant Thorburn, Luther Tucker, James Vick and Marshall P. Wilder. Not the least of the many interesting features of this volume is the article on horticulture in the island dependencies of America. Forcing, frost, grafting, grapes, irrigation are some of the topics included in this volume. The entire work is unquestionably the most important horticultural cyclopedic work published in this country.

Iowa State Horticultural Society Report—For 1914. Proceedings of the 49th annual session; also transactions of the auxiliary societies. Edited by the Secretary, Wesley Greene. Illustrated. Cloth; 8vo. pp. 492. With membership in Society, \$1.00 Des Moines: State Printer.

The Proceedings of a horticultural society of the standing and character of the Iowa State deserve preservation in the substantial form in which those of this society have long been favored. The added cost of binding in cloth is well invested, and it would be to the advantage of other state societies to observe this fact. The contents of the current Proceedings of the Iowa society are fully up to the high mark of the predecessors. We believe it would be of the greatest advantage to horticulturists in all states to procure the published proceedings of such societies as the Iowa State Horticultural, through annual or life membership, for the sake of the valuable reports issued. In the volume before us is an important paper on engine and windmill, in connection with the modern storage battery, as sources of electric current. Progressive horticulturists

Continued on Page 148

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RaspberriesWe have a nice stock of **Cumberland, Gregg and Columbian**, strong 1 year tips.A general line Fruit and Ornamental Stock
Send list of wants for prices**THE BLOOMINGTON NURSERY CO.**

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Buxus arborescens, Buxus sempervirens salicifolia and **Euonymus radicans** for lining out in nursery rows.

Shrub cuttings. Send for list.

WILD BROS. NURSERY COMPANY
Box 830 **Sarco, Missouri****WOOD LABELS**The kind that gives satisfaction
Can be supplied either plain or
printed, with Iron or Copper wire
attached in any quantity.Our facilities for handling your
requisite are unexcelled.Samples and prices are at the
command of a communication
from you.**DAYTON FRUIT TREE LABEL CO.****DAYTON, OHIO.**

Just say you saw it in AMERICAN FRUITS.

Events in Nursery and Orchard Rows

Special Reports to "American Fruits"

Big Kentucky Fruit Plans—A syndicate of Maysville, Kentucky, capitalists, together with several other men from other counties, have purchased 2,120 acres of land in the eastern part of Lewis and the western part of Greenup counties and have begun developing it as a fruit and berry farm. They will plant about 100 acres in peaches, setting out 130 trees to the acre and will plant apples, fifty trees to the acre. A large portion will be planted in strawberries, blackberries and raspberries.

Increased Shipping Facilities—The Pacific Fruit Express company contemplates extensive improvements in its handling facilities in the Pacific Northwest this season, according to an announcement made this morning by C. M. Secrist of San Francisco, president of the company. Four important distributing points and fruit centers in Washington are to receive the benefit of large expenditures for increased car space and trackage, and for increased refrigerating facilities. These points are North Yakima, Spokane, Wallula and Riparia.

Value of Windbreaks—Investigations have been carried on for eighteen years at the Northwest Experiment station, Crookston, Minn., regarding the best kind of trees to plant. Prof. T. M. McCall, horticulturist, gives the following summary of the results and makes a strong plea for tree planting. He says: "It is an assured fact that tree planting in our Northern prairies is now a profitable undertaking. A good selection and arrangement of trees in combined wood lot and windbreak not only gives the farm increased value but adds to the comfort and wealth of the owner. It has been demonstrated that willows, cottonwoods, or poplars if given ordinary care will give a greater return per acre in a 15-year period than wheat. As this section of the state grows older there will be an increasing demand for posts and poles and this demand can be met by the planting of common soft wood trees like white willow, cottonwoods, and poplars, three feet high, cost about 1 cent each, while green ash and box elders of the same size range in price from \$5 to \$10 per thousand. The cost per acre, then, to establish a windbreak should not exceed \$20.

Damage to Pine Seeds from Disinfectants—A story of the effects upon seeds and roots of disinfectants used to prevent the damping off disease has just been published by the U. S. Department of Agriculture as a professional paper under the title of "Injury By Disinfectants To Seeds and Roots in Sandy Soils." Experiments show that the use of sulphuric, hydrochloric, and nitric acids, or of copper sulphate, will not injure dormant pine seed, but in some soils will kill the root tips of germinating seedlings immediately after germination. In consequence these disinfectants can only be employed by persons able to recognize and prevent such injury. Injury to pine seedlings can be prevented by very frequent watering during the germinating period. This watering does not prevent the killing of annual weeds in seed beds treated with these disinfectants. The addition of lime to the soil shortly after it has been treated with the acid prevents injury to both pine and weed seedlings. The use of lime is not desirable in the case of pine, but may result in making possible the use of acid as a disinfectant for truck crop seed beds. Formaldehyde and mercuric chloride must be used several days before seed sowing if at all.

In an Apple—Scientific analysis of late years has justified all the ancient glorification of the apple, which has been found to contain albumen, sugar, gum, malic acid, gallic acid, fiber, water and phosphorus.

Malic acid of apples neutralizes the excess of chalky matter caused by too much meat and thereby helps to keep us young. Apples are good for the complexion, as their acids drive out the noxious matters which cause skin eruptions. They are good for the brain, which those same noxious matters, if retained render sluggish. The acids of the apple diminish the acidity of the stomach that comes with some forms of indigestion.

The phosphorus of which apples contain a larger per cent than any other fruit or vegetable, renews the essential matter of the brain and spinal column. England, Normandy and the United States have made the most notable improvement in the quality of the fruit.

Just say you saw it in *American Fruits*.

Seedling Nursery Stock—H. O. Mead, Worcester Co., Mass., says in Rural New Yorker: "I believe no work connected with my orchards has paid me better than that spent in selecting the trees I was to set, and were I to set another orchard I would spend even more time and money in getting trees that suited me. I would no more set a tree which had an inferior root growth than one that had a top-growth that could not easily be made to grow a strong and well-balanced top. Of the two I believe that a strong well-balanced thrifty root growth is the most important part in choosing trees for a future orchard. My own plan has been to buy the best grade of trees and grow a year or two in nursery rows. An orchard can be grown to bearing age cheaper by this method than setting small trees in permanent position, unless one can grow crops which will pay cost of cultivation. Such trees cannot be bought easily from the nursery when they must be packed and shipped by freight, as the root growth would be largely cut off and the limbs broken, but can be taken up in the fall or early spring and immediately set without seriously checking their growth. Then by setting only such trees as have a well-balanced thrifty root growth, throwing out all trees with a small, weak or fibrous root growth and those where the body of tree outgrows the stock upon which it was budded. I never set a tree which does not make a good thrifty growth in the nursery row, and dispose of such trees for what I can get out of them."

Grand Rapids, Mich., Park Nursery—"There is a lot of ground in the Union cemetery which we could use as a city nursery," said Park Commissioner Rumsey at a recent meeting of the Grand Rapids, Mich., Park Board. "By starting that nursery now we could provide for trees which will be needed for street planting in years to come. I believe the plan is worthy of adoption."

"Two years ago I bought 8,000 young trees at \$6 per 1,000," said Supt. Goebel. "We planted them, and they are coming along finely. They are now from three to four feet high. Within a few years those trees will be worth from \$3 to \$4 each."

"Well, I didn't know that," replied Commissioner Rumsey. "And you did all that for the city on an investment of only \$48?"

PRODUCTIVENESS OF PATRICK COUNTY, VA., ORCHARDS



Col. M. V. Stedman with favorite horse, beside Winesap tree that bore Nineteen Bushels No. 1 Apples in 1912. The Patrick Orchard, Patrick County, Virginia.

The Use of Refrigerator Cars

C. A. ROWLAND, Kalamazoo Co., Mich.

There is just as much difference in refrigerator cars as in folks. Avoid, if possible, cars that are becoming worn and old. Sometimes in handling perishable products it will be necessary to accept a car of doubtful character. In that case accept under protest and write your protest plainly across the bill of lading.

Meat refrigerator cars are not fit for the shipping of peaches or any other food product the flavor of which is easily tainted.

Slat bottoms are most desirable when shipping fruit.

It is often necessary to cool quickly a cargo of peaches or other highly perishable produce which has been placed in the car while still warm. This can be easily done by throwing salt upon the ice. Be sure, though, to test the car with a thermometer to see that you have not overdone it. Take no chances of frosting the fruit.

Examine the refrigerator cars and remove any unmelted ice. Go over the top of the car. See that the cushions are securely in place, then clasp down the lids. Have them sealed by the station-master.

A carload of fruit gets some terrific jolting before reaching the final siding. Be sure there are no loose barrels to rattle around.

One of the greatest dangers in shipping fruit during cold weather is that the car may be held indefinitely upon a siding and arrive long after it is expected.

The writer accompanied a carload of apples to Chicago during the first cold snap last fall. This car was side-tracked at the Muskegon yards and labeled "Out of Order," by the car inspector.

"How to Grow Roses"

This little book, of 36 pages, was declared by Bishop Mills, before the audience assembled at Cornell University during Farmers' Week, to be "the best thing of the size I have ever seen." Price 10c. Single copies will be sent to members of the trade who mention American Fruits.

The Conard & Jones Co.

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Successful results tell the story of prices consistent with present conditions. Shipping is done under old contract prices. Out list is **A LESSON; THE BEST POSTED BUYER WILL FIND A REVELATION.** If you are not on our mailing list, drop us a postal.

QUALITY AND SERVICE

ALL KINDS OF NURSERY STOCK

KALLEN & LUNNEMANN,
BOSKOOP, HOLLAND

FOR FALL OF 1915

We offer more than our usual supply of One and Two Year Apple Trees. We still have a large lot of Scions to offer. Write for prices. **JOHN A. CANNEDY NURSERY & ORCHARD CO.,** Carrollton, Ill.

Do not let the accounts owing you remain longer unpaid. Send them to us at once. We are prompt, energetic, and reasonable, and can reach any point in the United States and Canada.

NATIONAL FLORISTS' BOARD OF TRADE,
86 Pine St., N. Y.

NOTICE

To all American Nurserymen and Seedmen desiring to keep in touch with commercial horticulture in England and the continent of Europe. Your best means of doing this is to take in the

HORTICULTURAL ADVERTISER

Our circulation covers the whole trade in Great Britain and the cream of the European firms. Impartial reports of all novelties, etc. Paper free on receipt of 75 cents, covering cost of postage yearly. As the H. A. is a purely trade medium, applicants should, with the subscription, send a copy of their catalogue or other evidence that they belong to the nursery or seed trade.

Established 1883

A & C. PEARSON, Lowdham, Nottingham, Eng.

Examination showed that the trouble was merely in the roof and could not possibly cause an accident. So I got busy and persuaded the night inspector to set the car rolling upon the next train. Otherwise the car would have been held for at least 24 hours and that, too, while the mercury was hugging close to the zero point and a gale was blowing from off the lake.

Lively Planting in Iowa

"I don't know whether it is the weather, the European war or past experience that is causing it, but something is giving the nursery business an almost unheard of boost this year," said W. J. Hughes of the Cedar Rapids Nursery company last month, as he boosted a huge bundle of trees into an automobile driven by a wealthy farmer living near Watkins. "People who apparently considered fruit as a subject too trivial or unprofitable to bother with are either setting out new orchards this year, or rehabilitating their old tracts."

Men who are interested in the fruit business as a commercial proposition—and their number is increasing each year—state that Iowa is rapidly coming into her own again as a fruit growing section. The weather undoubtedly has something to do with it this year, as the absence of the usual spring rains has enabled the farmers to get their small grain crops in and their ground prepared for corn planting much earlier than usual.

Incorporations

J. Edward Moon and Henry T. Moon, Morrisville, Pa., and E. Wright Peterson, Gouverneur, N. Y., have organized the Moon Nursery Corporation at White Plains, N. Y.

Hamilton Orchards, Boston, Mass.; \$175,000; Charles F. Adams, William H. Minton, Justin Edwards.

The Windell Orchards have been established at Waupun, Wis., by E. F. Jones and others; capital \$25,000.

The James Morrison Orchards, incorporated, Lynchburg, Va. Maximum, \$25,000; minimum, \$5,000; par, \$100; orchard business. James Morrison, president; James E. Edmunds, vice-president; J. Easley Edmunds, Jr., secretary, all of Lynchburg, Va.

The State Nursery Co., Helena, Mont., celebrated last month its silver jubilee, and its officers point with pride to an organization which started business in 1890 with five lots 50 x 150 feet, and whose present holdings comprise 500 acres, 54 greenhouses, two stores and a large seed warehouse. The officers are T. E. Mills, president and general manager; W. E. Mills, vice-president; Walter Card, manager of seed department; John Jackson, manager of shipping department.

Almond Culture

Continued from Page 140

If the sulphur fumes are applied when the nuts are green, they penetrate the shell, affect the kernel and spoil the flavor. This will not occur when the shells are dry. The method of applying the sulphur is not unlike the method of applying it (or even hot air) to apples which we wish to dry or evaporate.

Varieties of Almonds—The varieties grown in this country come from two sources, those which have been introduced into California, and those which are native products. No country will approximate its possibilities in the growing of any fruit until it has produced its own varieties, and California is reaching that ideal in the almond business. It is on a sounder basis in that state today than ever before.

Twenty thousand trees, the gift of the city council, were planted May 3, by school children of Pittsburgh, Pa. Many of the trees were placed in school yards, where appropriate exercises were held. This is the largest number of trees ever planted here at one time and is part of a plan to make the city attractive.

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Against 12 cents (Cost of Postage) and 25 cents—Cost of the Volume—(which sum of 37 cents will be refunded at the first Order of the value of at least \$10), our General Illustrated descriptive and analytical Catalogue (Edition A. F.), 385 Pages and 135 explanatory Vignettes giving the full descriptive Nomenclature with Prices of all the Plants which we cultivate, will be sent free to any person applying for same

For Nurserymen's Consideration at Detroit Conv't'n

We have suggested repeatedly in *American Fruits* some of the things the American Association of Nurserymen could do for the nursery industry under an efficient organization. That this need is quite generally realized is shown continually by expression of dissatisfaction over numerous important trade conditions, the latest instance of which reaches our desk just as we are going to press:

Of the important matters for consideration at the Detroit meeting of the nurserymen's association it would seem as though the subject of the proposed increase in freight rates and the Pine Rust quarantine by the Department of Agriculture question should have earnest consideration and prompt action.

The plan of increasing the present heavy freight rates on nursery stock in car lots of something like 25 to 30% by the simple process of changing the classification, is one of the customary methods of insidiously increasing transportation charges under some specious plea of getting more money for the same service and, where there is such an important increase as that indicated, with the hope of securing the increased revenue without formidable protest or objection from interested shippers.

I believe it is openly admitted that for the average value of car contents of nursery stock proportionate to the weight, the present carload rates are in reality higher than the relative freight charges on almost any other kind of crude or finished material carried by the railroads. This fact makes the burden of any increase from the present high rates seem unbearable, especially as the 5% increase in the new trunk line rates, as permitted by the Interstate Commerce Commission, applies to nursery stock as to the other shipments. And this increase it is doubtful if the transportation managers themselves can claim any justification for this new increase in the expense for moving nursery stock.

In order to meet this situation effectively and aggressively it would seem at though a committee of able representative men, possibly a special committee should be appointed at the June meeting of the Association to take up this subject at headquarters, first with the presidents of some of the roads most interested and then with other officials in order that the proposed increased rates to be effective from June 1st be rescinded.

Any nurseryman or shipper of nursery stock has merely to look at his freight bills to have demonstrated how the material increase or cost of transportation under the proposed change in rates will result. Instances: Our own car shipments from Iowa to New York, \$84.30—under the new classification, \$105.58, and similar results from and to other points.

Re The Quarantine On All Pines
There have appeared in the Horticultural

papers some apparent differences between the understanding of some of the members of the Federal Horticultural Board and my own understanding of the position of that Board on this Pine quarantine subject at the hearing or conference held in Washington, February 2d, as to whether there would be ample opportunity for a fuller hearing before definite action would be taken by the Board. This was and is clearly my conviction as to what occurred at the hearing on this point and was therefore greatly surprised at the reference which appeared later from Chairman Marlatt in connection with the adoption of the quarantine recommendation by the Board on the 5th of February, only three days after the hearing referred to.

I have no doubt that Chairman Marlatt and his colleagues wished to be fair in their interpretation of what occurred, and as it was furthestest from my thought to refer to that understanding in any other way excepting as developed at the hearing, as publicly stated by me at the time, I have been quite unable to account for the apparent difference in statement in this regard. And if that meeting was fully reported I believe the records will fully bear out this understanding and the impression which I believe all derived at the time, viz., that there would be further hearing and opportunity for the nurserymen to appear before the Board during the present summer before decided action were taken as to this quarantine. It is noticeable that the recommendation of the Board of February 5th in favor of the quarantine was soon after made effective by the Secretary of Agriculture.

I am confident that no reputable concern would wish to do other than co-operate with the Department of Agriculture and the Board in preventing the introduction and dissemination of injurious insect pests as has been and is the policy of this company, but admittedly at the hearing February 2d it was shown that the immediate quarantine as then proposed was not justifiable, that there was a question whether the comparatively few instances of the Pine Moth could not be exterminated by proper pruning and care, nor do I think it was clearly shown that an arbitrary action in debarring all pines, whether for Forestry, Nursery purposes or other uses, would not cause a far greater injustice, loss and injury than the cost of effective remedies on the part of the Government, the different State Departments and the co-operation of the nursery trade.

There are of course some nurserymen like some of the officials in Washington and elsewhere who hail with satisfaction or delight and pretense or reason for debarring importations, but to the great majority in the trade and out of it this spirit, whether based upon over apprehension or the mercenary desire to cut off importations for personal advantage, cannot represent either the wishes or the interests of the great majority of the nurserymen and foresters and pri-

vate planters of the country who rely on same.

Should the Legislative Committee of the association take up this question in the right manner I believe that a modification of the present quarantine on Pines would be secured to the mutual advantage of the trade as a whole and purchasers of this class of Evergreens generally.

FREDERICK W. KELSEY.
New York City.

24 Cent Apples in Berlin

Roger Bennett, Medford, Ore., has received a postal from John A. Zeller, dated Berlin, Germany, April 7, which reads as follows: "I've found a place where I can get fine, solid, big Rogue River apples for 10 cents each. Some of the dealers think so much of them that they want a mark (24 cents) a piece for them. I'd pay that, too, if I had to, but it isn't necessary yet. I hope you push this year's crop along and also some of them over here."

The Germans are paying \$8 a box for Wenatchee valley apples, indicating that the English blockade is more or less effective. Seven dollars a box is the difference between the prices at Wenatchee Wash., and in Germany. Charles H. Wildberger received a letter dated April 16, from his father, formerly of Spokane, but now living in Dresden, Germany. He writes: "There are plenty of American apples on the market in Dresden, bearing Cashmere, Rogue River and Hood River labels, selling at 20 cents a pound. The apples are well packed and of good eating varieties. But the price is too high to permit of their general use. We will have to eliminate some of the numerous middlemen."

The Phoenix Nursery Company of Bloomington, Ill., was incorporated on May 6. Articles of incorporation were filed in the office of the Secretary of State at Springfield. The incorporators are A. H. and W. E. Rossney, and Thomas L. Weldon with A. E. De Mange as correspondent. The capital stock is \$2,500. The incorporation is for the purpose of doing a general nursery business in the county. The new company includes the people who were interested in the Phoenix Nursery Co. of Normal, which went into the hands of a receiver, and whose business was settled through procedure in court. The new corporation will operate the same nursery at Normal.

George C. Roeding, Fresno, Cal., was occupied in the first two weeks of last month as judge of horticultural exhibits at the Panama-Pacific Exposition.

We have a complete assortment of **APPLE**, both buds and grafts, **PEAR, CHERRY, PLUM, and PEACH.**

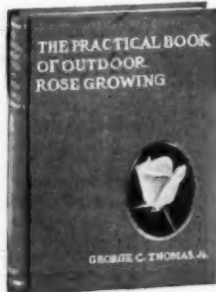
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Foreign Postage

The post office department in Washington has issued an appeal to business men of the country to observe the requirements regarding postage rates to foreign countries since much complaint is received regarding underpaid postage. Postmasters are asked to use every occasion to inform the public that to all places except the following the rate is 5 cents an ounce or fraction thereof: Canada, Cuba, Mexico, Panama Canal Zone, Bahamas, Barbados, British Honduras, Leeward Islands, Newfoundland, Germany by direct steamers, England, Scotland, Wales, Ireland and the city of Shanghai, China.

It has long seemed to us that the government should return marked "Held for Postage" all underpaid foreign matter as it does some domestic matter. Would not this cure the evil quicker than any other method?

James F. Zimmer, Cadillac, farm agent of Wexford county, Michigan, reports a success fruit tree campaign in his county. Last October when the Farm Bureau was organized it was planned to conduct a fruit tree campaign and sell trees at cost price.

Stark Brothers Nurseries and Orchards Co., Louisiana, Mo., donated 10,000 fruit trees to Jefferson City, the capital of the state, the Commercial Club of that city agreeing to plant them on the roads leading from the city at distances of 30 feet apart, on both sides of the road for a mile at least, besides on school and other public grounds.

Eltweed Pomeroy, Donna, Tex., has just set out four acres of roselle and a neighbor has set out 50 acres. In Mr. Pomeroy's opinion roselle has a big future.

Picking of Valencia oranges in Tulare county, Cal., was begun last month. While the Valencia crop will run 10,000 cars and is one of the best ever picked in Tulare county, and while more men are actually employed this season than ever before, there is no chance of putting one-half the men to work in the orchards, the growers assert.

Werff Bros., proprietors of the Abilene, Kansas, Nurseries, have sold their business to Miller Bros.

The Waxahachie, Texas, Nursery Co. has increased its capital stock from \$50,000 to \$92,500.

The Gulf Coast Horticultural Society at its annual meeting, selected Mobile, Ala., as permanent headquarters and set the last week in April, 1916, as the time of the next annual convention. Officers were elected as follows: Dr. O. F. E. Winberg, Silver Hill, Ala., president; L. T. Rhodes, Bay Minette, Ala., secretary and treasurer.

Grapes in Southern Michigan to the value of \$100,000 were destroyed by frost last month.

The Northwestern Nursery Co. of Valley City, N. D., had the contract for the planting of 3,000 trees on the Lake Juanita Amusement club grounds besides 2,000 trees that were purchased from the Great Northern nursery.

Present indications are that the Pecos Valley will ship from 1,000 to 1,200 cars of apples this season as against 320 cars last season. Many young orchards have come into bearing and next year will show a still heavier increase.

Nursery shipments were heavy this spring at Lake City, Minn. From twelve to fifteen carloads a day were sent out.

Mrs. Susan C. Smith

Mrs. Susan C. Smith, mother of W. and T. Smith, of the firm of W. & T. Smith Co., nurserymen, Geneva, N. Y., died at her home in that city, Sunday, April 25, at the age of 98 years.

Just say you saw it in AMERICAN FRUITS.

PLANT BREEDING

By BAILEY and GILBERT

Professor Bailey's standard text, originally issued some twenty years ago, has been revised and brought down to date by A. W. Gilbert, Professor of Plant Breeding in the New York State College of Agriculture. In addition to the many changes made in the material that has been retained, there are now included in the volume new discussions of mutations, Mendelism, heredity and the recent applications of the breeding of plants. There are also extensive laboratory exercises and a bibliography. Altogether the work is a comprehensive encyclopedia on the subject of plant-breeding.

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Manual of Fruit Insects

By M.V. SLINGERLAND and C.R. CROSBY

This book is a full and practical account of the insects which attack fruits—the enemies of the apple, pear, peach, plum, bush fruits, grapes, strawberries and cranberries. The authors give the life history of each insect, describe the injuries which it inflicts and make recommendations as to the means of control, primarily from the standpoint of the commercial grower. The more than four hundred illustrations in the volume were made largely from photographs taken by Professor Slingerland.

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By the owner, bearing Apple Orchard, 1,500 barrels last year. Address Box 513, Staunton, Va.

What Ornamental Nursery Stock is Doing

Good and Bad Street Trees

Professor R. W. Curtis of the landscape art department of the New York state college of agriculture has issued a list of desirable and undesirable trees.

Bad Street Trees

Professor Curtis points out that there are two classes of trees which are worthless on the street, those which are rapid growers and those which are individually conspicuous.

Under the rapid growers he includes weak-wooded and short-lived trees such as poplars, soft maple (sometimes known as silver or white maple), box elder or ash-leaved maple, sycamore maple, willows, birches, catalpa, European ash, and ailanthus. None of these he said, should go on any city street with the possible exception of one. This exception is ailanthus, or tree of heaven. In the dry tenement sections of large cities, where practically everything is pavement, the ailanthus may be used, but only because it is able to flourish under these harsh conditions. It is short-lived, will break in storms, and become unsightly and dangerous as it grows old.

Carolina poplars and soft maples, he says, are planted altogether too much. He points out that it is against the law to plant these two trees on the streets of several cities, both east and west, as in Cleveland and Minneapolis. In the city of Washington, noted for its street trees, these kinds are being cut down and others planted in their stead. While they are rapid growers they are weak, break easily in the wind, heave up pavements because their roots are near the surface; the roots also get into the sewer pipes.

The box elder is a tree planted largely because it is advertised by nurserymen who find it easy to grow. In New York it is generally a small straggling tree, weak and short-lived. It may be good for holding sliding banks, because it grows and spreads rapidly, but it is useless on the street.

Conspicuous Trees Undesirable

Among the conspicuous trees those which have flowers and fruits which would invite injury through vandalism are undesirable. Such trees are horse chestnuts, catalpa, flowering dogwood, magnolia, mountain ash, hickory, and chestnut.

In addition to inviting injury from those who seek its flowers or fruits, the horse chestnut, as a street tree, suffers from lack of water and very seldom survives the summer in slightly condition. The catalpa is weak, has conspicuous flowers, and in addition has large tender leaves which collect dust and become torn and ragged in storms. The locust is badly riddled by borers, and should not be planted for the same reason that chestnut is not planted, that is, that it is likely to succumb to disease.

Good Street Trees

For streets from 60 to 90 feet between buildings, pin oak, oriental plane or sycamore, and Norway maple are said to be desirable. The Norway maple is tough and hardy, has few insect enemies, but has the disadvantage of being broad and low-headed so that it does not allow of the passage of

wires where overhead wires are in use. In order to provide ample growing space the trees should be planted 40 feet apart. For wide streets where there is more than 90 feet between buildings the American elm, red oak, and sugar maple are advocated. For these trees the space should be not less than 50 feet between trees and where possible they should be planted well inside of the curb line.

The sugar maple is particularly attractive and desirable but it needs a good deal of moisture. Pin oak is excellent for both narrow and average streets, and is also desirable as individual specimens for the lawn. Contrary to general opinion in regard to oaks, it is a fairly rapid grower and it shares this quality with red oak.

American elm is said to be the handsomest and most satisfactory shade trees in this country, mainly because of its high arching branches which shade but do not smother, allowing free passage of air beneath the tree itself. Some objection has been made to the elm tree because of the depredations of the elm-leaf beetle, and other insect pests, but this can be readily overcome. In other words, the authorities of the college of agriculture say that the farmer might as readily refuse to raise potatoes because of potato bugs, or decide against planting an orchard because of San Jose scale. The various enemies of the elm tree are easily overcome. One high power sprayer is sufficient to give all the elms in an average sized city or town a good spraying, promptly and efficiently, at a cost not to exceed 20 cents a tree. This power sprayer has an engine with a special pump which can furnish 300 pounds pressure continuously. Such a sprayer can shoot over any tree grown in the East, and no ladders are necessary. The stream of spray breaks into a mist at about 50 or 60 feet from the ground when a straight-bore nozzle with a 1/4-inch opening, is used or from 90 to 100 feet with a larger opening. In a small town such as high power sprayer could be used for fire protection, or the engine could be detached from the pump and used for other power purposes.

Co-operation Essential

In all street tree work it is pointed out that co-operation with one's neighbors is essential, especially where the trees are not cared for under direct municipal supervision. A street planted uniformly to one good kind of tree is much better than one planted to three or four kinds, and the trees on both sides of the streets should be alike. It is advocated that all towns should have a shade tree commission or at least a tree warden with power to secure co-operation with all the city's interests, or that the town itself should plant and care for the trees.

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Literature

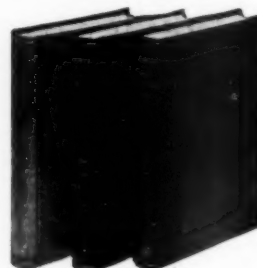
Continued from Page 143

the native shrubs of Iowa with illustrations. It is a fine thing for record and reference. The reports of the directors of the twelve state districts show what has been done during the year in the development of the industry in the state. Papers on horticultural subjects too numerous to mention here are given in full, with the discussion which followed at the annual meeting. These are practical to a degree and are invaluable when taken in connection with the reports and papers preserved in preceding volumes and to appear in succeeding volumes. Then there are the Proceedings of the auxiliary societies, features of which include a comprehensive paper of Secretary Greene on hardy herbaceous plants, of timely and enduring interest; and a paper on horticulture in the Philippines by F. W. Taylor. An index makes easy reference to every feature of the volume.

Ohio State Horticultural Society Report—Forty-eighth annual meeting in Columbus, January 1915. By the Secretary, F. H. Bal-lou. Paper; 8vo. pp 107. With membership in Society, \$1.00. Published by the Society.

Papers and discussions on a wide variety of subjects of direct interest to Ohio horticulturists and of much general interest are here preserved for reference. Among them are the following: Fall and Spring Planting, W. N. Scarff; Best Way to Purchase Nursery Stock, T. B. West; Good Will Between Nurseryman and Fruit Grower (summarized in *American Fruits*), H. S. Day; Blight Situation in Ohio, A. D. Selby; Pomological Nomenclature, Prof. W. R. Lazenby. The American Pomological Society's list of varietal names as approved to date is included in the volume.

If it relates to Horticulture it is in "American Fruits."



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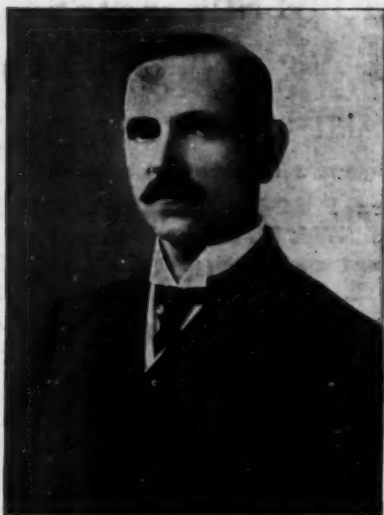


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We have made many improvements around our nurseries during the past two or three years. This year the results are showing and our trees are in



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better shape than ever. Our Blue Spruces, Hemlocks, Arborvitae and Retinosporas are **extra**; in the big blocks of Norway and Silver Maples it would be almost impossible to find a poor specimen.

Out in the fruit tree section, where we are growing millions of Apples and Peaches, a negro workman said the other day "Mr. Har-r-son, dem's de fines' trees yo' ever had!" He ought to know, for he has worked here a long time.

We haven't cut prices, but every year we are increasing the quality. We are putting more than a dollar's worth into every order that goes out from this place. We **know**, for the trees we sell are grown here at Berlin.

Come to Berlin this Summer See the nurseries, and our way of doing things. Go over to Ocean City and spend a day or two watching the ocean—have a dip in salt water if you like it.

Better Reserve Some of This Stock NOW So It Can Be Shipped Later

You can't make money any faster or easier than to order your fall supplies right now. We will ship when you say the word, and bill as usual.

OUR SPECIALTIES

Half a Million Peach Trees, Half a Million Apple Trees
Half a Million Ornamental Trees and Shrubs
A Hundred Thousand Norway Maples

Norway Maples, 100,000	
PEACH TREES—1 Year from Bud	
Elberta	50,000
Belle of Georgia	50,000
Carman	30,000
Champion	30,000
Hiley	10,000
Ray	50,000
Greensboro	5,000
Stump	5,000
Crawford Late	5,000
Crawford Early	5,000
Smock	10,000
Fox Seedling	5,000

APPLE TREES—2 Year	
Stayman Winesap	50,000
Mammoth Black Twig	25,000
Winesap	5,000
Baldwin	20,000
Rome Beauty	2,000

APPLE TREES—2 Yr. (Continued)	
Jonathan	7,000
Stark	3,000
York Imperial	3,000
Grimes Golden	3,000
McIntosh	9,000
Yellow Transparent	3,000
King	2,000
Duchess	1,000
Gravenstein	6,000
Wolf River	3,000
Williams Early Red	2,000
Fameuse	3,000
Rhode Island Greening	3,000
Red Astrachan	1,000
Northern Spy	1,000
Delicious	1,000
Gano	1,000
Ben Davis	1,000
Newtown Pippin	1,000
Smokehouse	1,000

Alexander	1,000
Early Harvest	1,000
Nero	1,000
Paradise Winter Sweet	1,000
Fourth of July	1,000
Spitzenburg	1,000
Fallawater	500
Northern Greening	1,000
Talman Sweet	500
Carolina Red June	500
Wagner	1,000

NORWAY MAPLES	
4 inch	1,000
14 to 16 feet, 3 to 3½ inch.....	3,000
14 to 16 feet, 2½ to 3 inch.....	4,000
12 to 14 feet, 2 to 2½ inch.....	3,500
12 feet, 1½ to 2 inch.....	2,500
10 to 12 feet, 1½ to 1¾ inch.....	2,000
8 to 10 feet, 1 to 1½ inch.....	1,500
7 to 8 feet, 1 to 1¼ inch.....	1,000
6 to 8 feet, ¾ inch.....	500

Remember, we will be at Detroit, June 23, 24, 25. Look for HARRISONS—Berlin, Maryland

Harrisons' Nurseries, Berlin, Md.

